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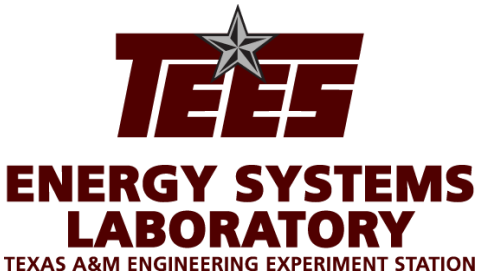

TAMU Project

Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the

Month of September 2016

Prepared for

Utility & Energy Services

Division of Administration

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Acknowledgements

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Executive Summary

This report analyzes the energy use data collected from 582 meters in 202 buildings and complexes (approximately 20,485,000 GSF) on the campus of Texas A&M University in College Station, Texas. The report consists of five sections: 1) The summary of the monthly energy consumption per meter ID, 2) The quality control and assurance analysis of incorrect or incomplete energy use patterns, 3) Energy consumption time series plots, 4) Energy Balance plots, and 5) Energy Balance plots with filled-in consumption data. Section one contains the summary of monthly energy consumption for each of the TAMU buildings. Section two includes the reviews on each of those building energy use patterns that presented problems in the metered data. Section three and four are a collection of the plots generated for the energy use analysis, as reference to indicate and validate the quality of the metered energy data. The Section five includes the energy balance plots with filled-in energy data.

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I. Summary of Monthly Consumption

Table I-1 September 2016 Monthly Consumption for TAMU Buildings

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0270	Emerging Technologies Building	305,316	007469	ELE	197,558	kWh	
0270	Emerging Technologies Building	305,316	007470	ELE	55,029	kWh	
0270	Emerging Technologies Building	305,316	007471	CHW	3,523,672	mBtu	
0270	Emerging Technologies Building	305,316	007475	HHW	193,358	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007715	ELE	59,065	kWh	
0275	Liberal Arts and Arts & Humanities Building	107,500	007716	CHW	638,688	mBtu	
0275	Liberal Arts and Arts & Humanities Building	107,500	007717	HHW	40,631	mBtu	
0290	Wells Residence Hall	67,283	006870	ELE	50,264	kWh	
0290	Wells Residence Hall	67,283	001984	CHW	1,071,400	mBtu	(2)
0290	Wells Residence Hall	67,283	001988	HHW	403,651	mBtu	(2)
0291	Rudder Residence Hall	67,283	000351	ELE	56,477	kWh	
0291	Rudder Residence Hall	67,283	002132	CHW	849,148	mBtu	(1), (2)
0291	Rudder Residence Hall	67,283	002136	HHW	262,955	mBtu	(1), (2)
0292	Eppright Residence Hall	67,283	000002	ELE	49,276	kWh	
0292	Eppright Residence Hall	67,283	002262	CHW	741,585	mBtu	
0292	Eppright Residence Hall	67,283	002266	HHW	197,130	mBtu	
0293	Appelt Residence Hall	82,767	000003	ELE	61,018	kWh	
0293	Appelt Residence Hall	82,767	002062	CHW	971,145	mBtu	(2)
0293	Appelt Residence Hall	82,767	002066	HHW	296,253	mBtu	(2)
0294	Lechner Residence Hall	59,541	000004	ELE	50,799	kWh	
0294	Lechner Residence Hall	59,541	002285	CHW	726,194	mBtu	
0294	Lechner Residence Hall	59,541	002289	HHW	379,387	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006536	ELE	108,644	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006537	ELE	98,589	kWh	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006534	CHW	1,467,765	mBtu	
0296-0297	Mitchell Inst. For Fundamental Phys & Astronomy	189,617	006535	HHW	169,858	mBtu	
0353	Bright Aerospace Building	148,837	001569	ELE	168,450	kWh	
0353	Bright Aerospace Building	148,837	002746	CHW	1,998,819	mBtu	(2)
0353	Bright Aerospace Building	148,837	002757	HHW	57,899	mBtu	(2)
0358	Davis Football Player Development Center	20,026	007699	ELE	26,475	kWh	
0358	Davis Football Player Development Center	20,026	007701	CHW	221,739	mBtu	(2)
0358	Davis Football Player Development Center	20,026	007702	HHW	3,570	mBtu	
0361	Bright Football Complex	124,971	008461	ELE	220,943	kWh	
0361	Bright Football Complex	124,971	002547	CHW	1,846,458	mBtu	
0361	Bright Football Complex	124,971	002551	HHW	123,472	mBtu	
0367	Kyle Field	489,000	000336	ELE	201,767	kWh	
0367	Kyle Field	489,000	008861	ELE	116,894	kWh	
0367	Kyle Field	489,000	008862	ELE	145,160	kWh	
0367	Kyle Field	489,000	008863	ELE	214,863	kWh	
0367	Kyle Field	489,000	008864	ELE	208,547	kWh	
0367	Kyle Field	489,000	008865	ELE	101,566	kWh	
0367	Kyle Field	489,000	008866	ELE	169,017	kWh	
0367	Kyle Field	489,000	008867	ELE	225,511	kWh	
0367	Kyle Field	489,000	008868	ELE	107,109	kWh	
0367	Kyle Field	489,000	008852	CHW	4,568,768	mBtu	
0367	Kyle Field	489,000	008026	CHW	5,584,037	mBtu	
0367	Kyle Field	489,000	008856	HHW	272,027	mBtu	
0367	Kyle Field	489,000	008027	HHW	698,781	mBtu	
0376	Chemistry Building Addition	115,797	006229	ELE	180,514	kWh	
0376	Chemistry Building Addition	115,797	006230	ELE	119,480	kWh	
0376	Chemistry Building Addition	115,797	007115	CHW	4,732,529	mBtu	
0376	Chemistry Building Addition	115,797	007119	HHW	777,310	mBtu	#, (1)
0383	Koldus Building	110,272	001488	ELE	170,908	kWh	
0383	Koldus Building	110,272	002863	CHW	1,087,667	mBtu	(2)
0383	Koldus Building	110,272	002874	HHW	138,750	mBtu	(2)
0384	Sanders Corps of Cadets Center	19,363	001554	ELE	23,993	kWh	
0384	Sanders Corps of Cadets Center	19,363	002583	CHW	224,164	mBtu	
0384	Sanders Corps of Cadets Center	19,363	002587	HHW	53,990	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009122	ELE	166,698	kWh	
0325-0385	CE TTI Office & Lab Building	157,844	009123	CHW	1,444,937	mBtu	
0325-0385	CE TTI Office & Lab Building	157,844	009124	HHW	93,554	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	001428	ELE	168,141	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	001429	ELE	350,418	kWh	
0386	Jack E. Brown Chemical Engineering Building	205,000	002250	CHW	5,755,830	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	006871	CHW	109,353	mBtu	
0386	Jack E. Brown Chemical Engineering Building	205,000	002254	HHW	496,627	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0387	Richardson Petroleum Engineering Building	113,700	005870	ELE	85,980	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005872	ELE	106,796	kWh	
0387	Richardson Petroleum Engineering Building	113,700	005805	CHW	1,733,025	mBtu	
0387	Richardson Petroleum Engineering Building	113,700	005809	HHW	38,401	mBtu	(2)
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	001573	ELE	208,299	kWh	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002906	CHW	1,798,375	mBtu	
0391-0392	James J. Cain'51 and Mechanical Engineering Office Building	173,481	002910	HHW	140,152	mBtu	
0394	Underwood Residence Hall	81,730	000014	ELE	61,282	kWh	(2)
0394	Underwood Residence Hall	81,730	002117	CHW	820,148	mBtu	(2)
0394	Underwood Residence Hall	81,730	002121	HHW	195,856	mBtu	(2)
0398	Langford Architecture Center Building A	116,619	003806	ELE	131,220	kWh	
0398	Langford Architecture Center Building A	116,619	003951	CHW	1,285,536	mBtu	
0398	Langford Architecture Center Building A	116,619	003955	HHW	201,246	mBtu	
0400-0402-1405	Spence Hall, Briggs Hall, and Ash II LLC	97,222	009386	ELE	92,136	kWh	*
0400	Spence Hall Dorm 1	31,952	009290	ELE	13,953	kWh	*
0400	Spence Hall Dorm 1	31,952	009291	ELE	17,984	kWh	*
0400-1405	Spence Hall and Ash II LLC	65,083	009292	CHW	930,257	mBtu	
0400-1405	Spence Hall and Ash II LLC	65,083	009296	HHW	215,241	mBtu	
1405	Ash II LLC	33,131	009387	CHW	430,885	mBtu	*
1405	Ash II LLC	33,131	009391	HHW	135,291	mBtu	*
0402	Briggs Hall Dorm 3	32,139	009322	ELE	17,681	kWh	*
0402	Briggs Hall Dorm 3	32,139	009323	ELE	13,834	kWh	*
0402	Briggs Hall Dorm 3	32,139	009324	CHW	541,224	mBtu	
0402	Briggs Hall Dorm 3	32,139	009328	HHW	42,022	mBtu	
0401-0403-1404	Kiest Hall, Fountain Hall, and Plank LLC	106,097	009370	ELE	90,584	kWh	*
0401	Kiest Hall Dorm 2	35,967	009306	ELE	14,748	kWh	*
0401	Kiest Hall Dorm 2	35,967	009307	ELE	14,552	kWh	*
0401-1404	Kiest Hall, and Plank LLC	69,204	009308	CHW	998,744	mBtu	
0401-1404	Kiest Hall, and Plank LLC	69,204	009312	HHW	191,852	mBtu	
1404	Plank LLC	33,237	009372	CHW	489,775	mBtu	*
1404	Plank LLC	33,237	009376	HHW	149,800	mBtu	*
0403	Fountain Hall Dorm 4	36,893	009338	ELE	15,829	kWh	*
0403	Fountain Hall Dorm 4	36,893	009339	ELE	12,921	kWh	*
0403	Fountain Hall Dorm 4	36,893	009340	CHW	450,248	mBtu	
0403	Fountain Hall Dorm 5	36,893	009344	HHW	57,326	mBtu	
0404-0406-1403	Gainer Hall, Leonard Hall and Ash LLC	88,083	009401	ELE	74,256	kWh	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	54,179	007982	CHW	716,275	mBtu	
0406-1403	Leonard Hall - Dorm 7 and Ash LLC	54,179	007983	HHW	40,095	mBtu	
0406	Leonard Hall - Dorm 7	36,893	008011	ELE	13,467	kWh	
0406	Leonard Hall - Dorm 7	36,893	008012	ELE	14,943	kWh	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008005	CHW	256,394	mBtu	
1403	H. Grady Ash, Jr. '58 Leadership Learning Center	17,286	008006	HHW	2,086	mBtu	
0404	Gainer Hall Dorm 5	33,904	009354	ELE	14,121	kWh	*
0404	Gainer Hall Dorm 5	33,904	009355	ELE	12,240	kWh	*
0404	Gainer Hall Dorm 5	33,904	009356	CHW	504,734	mBtu	
0404	Gainer Hall Dorm 5	33,904	009360	HHW	33,848	mBtu	
0405-0407-1402	Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center	91,310	007721	ELE	78,107	kWh	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007722	CHW	745,291	mBtu	
0407-1402	Harrell Hall - Dorm 8 and Buzbee LLC	54,443	007723	HHW	40,315	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007922	ELE	29,504	kWh	
0405	Lacy Hall - Dorm 6	36,867	007918	CHW	458,407	mBtu	
0405	Lacy Hall - Dorm 6	36,867	007919	HHW	60,566	mBtu	
0407	Harrell Hall - Dorm 8	36,943	007729	ELE	29,585	kWh	
1402	Buzbee Leadership Learning Center	17,500	007725	CHW	225,398	mBtu	(1)
1402	Buzbee Leadership Learning Center	17,500	007726	HHW	5,900	mBtu	
0412	Moses Residence Hall	40,828	000027	ELE	35,860	kWh	
0412	Moses Residence Hall	40,828	002384	CHW	739,768	mBtu	(2)
0412	Moses Residence Hall	40,828	002395	HHW	172,068	mBtu	
0415	Davis-Gary Residence Hall	40,828	000030	ELE	31,641	kWh	
0415	Davis-Gary Residence Hall	40,828	002532	CHW	651,919	mBtu	
0415	Davis-Gary Residence Hall	40,828	002543	HHW	130,621	mBtu	
0419	Legett Residence Hall	45,134	000031	ELE	16,048	kWh	*, (2)
0419	Legett Residence Hall	45,134	002218	CHW	247,943	mBtu	*, (2)
0419	Legett Residence Hall	45,134	002222	HHW	47,067	mBtu	*, (2)
0420	Milner Hall	48,268	009144	ELE	25,403	kWh	
0420	Milner Hall	48,268	009145	CHW	330,932	mBtu	
0420	Milner Hall	48,268	009146	HHW	33,031	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0422	Walton Residence Hall	51,494	000378	ELE	106,208	kWh	
0422	Walton Residence Hall	51,494	002364	HHW	40,664	mBtu	
0424	Hotard Hall	18,500	000032	ELE	14,229	kWh	
0424	Hotard Hall	18,500	002657	CHW	188,346	mBtu	
0424	Hotard Hall	18,500	002668	HHW	35,423	mBtu	
0425	Henderson Hall	22,185	001553	ELE	16,478	kWh	
0425	Henderson Hall	22,185	002607	CHW	298,478	mBtu	(2)
0425	Henderson Hall	22,185	002611	HHW	69,432	mBtu	
0426-0427-0428	FHK Complex	154,349	000331	ELE	119,289	kWh	
0426-0427-0428	FHK Complex	154,349	002848	CHW	1,577,209	mBtu	
0426-0427-0428	FHK Complex	154,349	002859	HHW	155,691	mBtu	
0430	Schumacher Residence Hall	38,957	000034	ELE	32,167	kWh	
0430	Schumacher Residence Hall	38,957	002015	CHW	462,779	mBtu	
0430	Schumacher Residence Hall	38,957	002030	HHW	18,173	mBtu	#, (1)
0359	Architecture Building B	28,545	005518	ELE	21,139	kWh	
0432	Architecture Building C	73,020	005584	ELE	80,888	kWh	
0359-0432	Architecture Building B&C	101,565	006419	CHW	812,652	mBtu	
0359-0432	Architecture Building B&C	101,565	006423	HHW	182,672	mBtu	
0434	Luedecke Building (Cyclotron)	80,646	005555	ELE	130,157	kWh	
0434	Luedecke Building (Cyclotron)	80,646	005558	ELE	1,034,825	kWh	
0434	Luedecke Building (Cyclotron)	80,646	006664	CHW	2,079,609	mBtu	
0434	Luedecke Building (Cyclotron)	80,646	006668	HHW	44,432	mBtu	
0435	Harrington Education Center Office Tower	130,844	001546	ELE	136,009	kWh	
0435	Harrington Education Center Office Tower	130,844	002792	CHW	1,281,648	mBtu	
0435	Harrington Education Center Office Tower	130,844	002796	HHW	338,399	mBtu	
0436	Reed-McDonald Building	77,435	006868	ELE	88,611	kWh	
0436	Reed-McDonald Building	77,435	002419	CHW	2,007,048	mBtu	
0436	Reed-McDonald Building	77,435	002423	HHW	271,310	mBtu	
0438	Harrington Education Center Classroom Building	61,860	003630	ELE	43,800	kWh	
0438	Harrington Education Center Classroom Building	61,860	002784	CHW	521,902	mBtu	
0438	Harrington Education Center Classroom Building	61,860	002788	HHW	614	mBtu	
0433-0440-0441-04	Mosher Commons Krueger Dunn Aston	577,584	009099	ELE	373,425	kWh	
0433	Mosher Residence Hall	155,430	009083	ELE	105,554	kWh	(2)
0433	Mosher Residence Hall	155,430	002485	CHW	1,915,208	mBtu	(2)
0433	Mosher Residence Hall	155,430	002489	HHW	467,155	mBtu	(2)
0440	Commons Hall	84,500	009237	CHW	677,680	mBtu	
0440	Commons Hall	84,500	009238	HHW	86,519	mBtu	(2)
0441	Krueger Residence Hall	112,133	009091	ELE	83,472	kWh	
0441	Krueger Residence Hall	112,133	002504	CHW	1,054,043	mBtu	(1)
0441	Krueger Residence Hall	112,133	002500	HHW	349,513	mBtu	#, (1)
0442	Dunn Residence Hall	112,133	009095	ELE	111,222	kWh	
0442	Dunn Residence Hall	112,133	002519	CHW	1,016,979	mBtu	
0442	Dunn Residence Hall	112,133	002515	HHW	194,118	mBtu	(1)
0447	Aston Residence Hall	113,388	009087	ELE	72,864	kWh	
0447	Aston Residence Hall	113,388	002474	CHW	1,201,394	mBtu	(1)
0447	Aston Residence Hall	113,388	002470	HHW	332,429	mBtu	(1)
0443	Oceanography & Meteorology Building	180,316	005322	ELE	167,977	kWh	
0443	Oceanography & Meteorology Building	180,316	005323	ELE	62,964	kWh	
0443	Oceanography & Meteorology Building	180,316	006388	CHW	1,451,956	mBtu	*
0443	Oceanography & Meteorology Building	180,316	006392	HHW	185,124	mBtu	*
0444	Peterson Building	84,831	004714	ELE	155,660	kWh	
0444	Peterson Building	84,831	002922	CHW	1,320,470	mBtu	
0444	Peterson Building	84,831	006435	HHW	156,552	mBtu	#, (1)
0445-0517	Teague Research Center and DPC Annex	89,735	003948	ELE	27,548	kWh	
0445-0517	Teague Research Center and DPC Annex	89,735	004719	ELE	54,443	kWh	
0445	Teague Research Center	63,515	006411	CHW	431,983	mBtu	
0445	Teague Research Center	63,515	006415	HHW	26,492	mBtu	
0517	DPC Annex	26,220	006563	CHW	655,421	mBtu	
0517	DPC Annex	26,220	006567	HHW	253,244	mBtu	(1)
0446	Rudder Theatre Complex	209,293	002977	ELE	98,319	kWh	
0446	Rudder Theatre Complex	209,293	002980	ELE	26,875	kWh	
0446	Rudder Theatre Complex	209,293	004297	CHW	1,843,914	mBtu	(2)
0446	Rudder Theatre Complex	209,293	004309	HHW	646,146	mBtu	(2)
0446	Rudder Tower	92,947	001550	ELE	39,167	kWh	
0446	Rudder Tower	92,947	001551	ELE	65,548	kWh	
0446	Rudder Tower	92,947	002455	CHW	1,032,794	mBtu	
0446	Rudder Tower	92,947	002459	HHW	46,062	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0448	Adams Band Hall	55,248	000978	ELE	64,342	kWh	
0448	Adams Band Hall	55,248	002555	CHW	511,360	mBtu	(1)
0448	Adams Band Hall	55,248	002566	HHW	242,224	mBtu	(1)
0449	Biological Sciences Building - West	96,038	003978	ELE	183,548	kWh	
0449	Biological Sciences Building - West	96,038	003981	CHW	1,627,504	mBtu	
0449	Biological Sciences Building - West	96,038	003985	HHW	90,252	mBtu	
0450	Duncan Dining Hall	128,482	000300	ELE	124,159	kWh	
0450	Duncan Dining Hall	128,482	002998	CHW	1,258,006	mBtu	
0450	Duncan Dining Hall	128,482	003009	HHW	19,214	mBtu	
0454	MSC (East Main)	392,000	007600	ELE	350,540	kWh	
0454	MSC (West Main)	392,000	007601	ELE	218,844	kWh	
0454	MSC BOR	392,000	008047	ELE	18,151	kWh	
0454	MSC	392,000	007584	CHW	4,303,849	mBtu	
0454	MSC BOR	392,000	004184	CHW	523,005	mBtu	
0454	MSC	392,000	007585	HHW	244,622	mBtu	(1)
0454	MSC BOR	392,000	004196	HHW	204,556	mBtu	
0456	Military Sciences Building	43,808	006939	CHW	608,289	mBtu	
0456	Military Sciences Building	43,808	006943	HHW	145,110	mBtu	(1)
0457	TAES Annex Building	16,364	005863	ELE	14,418	kWh	
0457	TAES Annex Building	16,364	005913	CHW	113,574	mBtu	
0457	TAES Annex Building	16,364	005917	HHW	31,444	mBtu	
0461	Coke Building	24,466	004008	ELE	25,412	kWh	
0461	Coke Building	24,466	005307	CHW	146,183	mBtu	
0461	Coke Building	24,466	004023	HHW	380	mBtu	
0462	Academic Building	82,555	005861	ELE	22,026	kWh	
0462	Academic Building	82,555	005903	ELE	36,556	kWh	
0462	Academic Building	82,555	005905	CHW	619,608	mBtu	
0462	Academic Building	82,555	005909	HHW	158,292	mBtu	(2)
0463	Psychology Building	48,215	001575	ELE	45,481	kWh	
0463	Psychology Building	48,215	002941	CHW	621,631	mBtu	
0463	Psychology Building	48,215	002945	HHW	26,761	mBtu	
0464	State Chemist Building	20,027	005839	ELE	12,860	kWh	
0464	State Chemist Building	20,027	005837	ELE	8,604	mBtu	
0464	State Chemist Building	20,027	005841	HHW	148	mBtu	
0465	Butler Hall	29,699	003997	ELE	33,503	kWh	
0465	Butler Hall	29,699	004000	CHW	405,935	mBtu	
0465	Butler Hall	29,699	004004	HHW	87,448	mBtu	
0467	Biological Sciences Building - East	62,273	001543	ELE	199,863	kWh	
0467	Biological Sciences Building - East	62,273	003851	CHW	1,043,668	mBtu	#, (1), (2)
0467	Biological Sciences Building - East	62,273	003862	HHW	92,510	mBtu	(2)
0468	Evans Library	712,093	000304	ELE	264,358	kWh	
0468	Evans Library	712,093	000318	ELE	149,426	kWh	
0468	Evans Library	712,093	000319	ELE	101,434	kWh	
0468	Evans Library	712,093	000320	ELE	89,630	kWh	*
0468	Evans Library	712,093	006429	ELE	95,244	kWh	*
0468	Evans Library	712,093	003701	CHW	1,775,367	mBtu	
0468	Evans Library	712,093	003895	CHW	2,056,735	mBtu	
0468	Evans Library	712,093	003903	CHW	323,411	mBtu	*
0468	Evans Library	712,093	003911	CHW	1,355,875	mBtu	*
0468	Evans Library	712,093	003712	HHW	177,864	mBtu	
0468	Evans Library	712,093	003899	HHW	278,932	mBtu	
0468	Evans Library	712,093	003907	HHW	50,247	mBtu	*
0468	Evans Library	712,093	003922	HHW	43,366	mBtu	*
0468	Evans Library	712,093	005303	HHW	56,003	mBtu	*
0469	Central Campus Parking Garage	251,304	000306	ELE	45,717	kWh	
0469	Central Campus Parking Garage	2,844	003716	CHW	67,032	mBtu	
0469	Central Campus Parking Garage	2,844	003720	HHW	3,525	mBtu	
0470	Glasscock History Bldg	39,887	006407	ELE	19,810	kWh	
0470	Glasscock History Bldg	39,887	006638	CHW	276,482	mBtu	
0470	Glasscock History Bldg	39,887	006642	HHW	12,096	mBtu	
0471	Pavilion	40,062	001455	ELE	41,457	kWh	
0471	Pavilion	40,062	002769	CHW	342,357	mBtu	
0471	Pavilion	40,062	002780	HHW	202	mBtu	
0472	Animal Industries	44,856	009042	ELE	51,889	kWh	
0472	Animal Industries	44,856	009109	CHW	668,829	mBtu	
0472	Animal Industries	44,856	009113	HHW	1,292	mBtu	
0473	Williams Administration Building	69,898	007945	ELE	50,106	kWh	
0473	Williams Administration Building	69,898	007946	CHW	545,306	mBtu	(2)
0473	Williams Administration Building	69,898	007947	HHW	30,496	mBtu	(2)

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0474	YMCA Building	36,035	007524	ELE	27,262	kWh	
0474	YMCA Building	36,035	007525	CHW	237,728	mBtu	
0474	YMCA Building	36,035	007526	HHW	7,455	mBtu	
0476	Francis Hall	36,850	008015	ELE	39,160	kWh	*
0476	Francis Hall	36,850	008033	CHW	577,047	mBtu	
0476	Francis Hall	36,850	008034	HHW	474	mBtu	
0477	Anthropology Building	51,592	001558	ELE	33,999	kWh	
0477	Anthropology Building	51,592	003664	CHW	587,855	mBtu	
0477	Anthropology Building	51,592	003668	HHW	28,330	mBtu	
0478	Scoates Hall	62,228	007961	ELE	53,811	kWh	(2)
0478	Scoates Hall	62,228	007968	CHW	535,900	mBtu	(2)
0478	Scoates Hall	62,228	007969	HHW	37,621	mBtu	(2)
0480	Bolton Hall	39,686	006845	ELE	34,057	kWh	
0480	Bolton Hall	39,686	007012	CHW	263,032	mBtu	
0480	Bolton Hall	39,686	007016	HHW	35,365	mBtu	
0481	Heaton Hall	13,640	005712	ELE	NA	kWh	*
0481	Heaton Hall	13,640	007531	CHW	275,588	mBtu	
0481	Heaton Hall	13,640	007535	HHW	167,170	mBtu	
0482	Fermier Hall	19,074	005779	ELE	21,674	kWh	
0482	Fermier Hall	19,074	005878	CHW	219,487	mBtu	(2)
0482	Fermier Hall	19,074	005881	HHW	321	mBtu	(2)
0483	Thompson Hall	81,404	003688	ELE	68,209	kWh	
0483	Thompson Hall	81,404	003887	CHW	335,425	mBtu	#, (1)
0483	Thompson Hall	81,404	003891	HHW	13,337	mBtu	
0484	Chemistry Building	205,393	007152	ELE	84,348	kWh	
0484	Chemistry Building	205,393	007556	ELE	13,068	kWh	
0484	Chemistry Building	205,393	007557	ELE	68,355	kWh	
0484	Chemistry Building	205,393	007559	ELE	175,129	kWh	
0484	Chemistry Building	205,393	007028	CHW	2,365,813	mBtu	
0484	Chemistry Building	205,393	007223	CHW	5,298,644	mBtu	
0484	Chemistry Building	205,393	007032	HHW	334,583	mBtu	
0484	Chemistry Building	205,393	007227	HHW	653,684	mBtu	
0490	Halbouty Geosciences Building	120,874	006691	ELE	63,164	kWh	
0490	Halbouty Geosciences Building	120,874	006695	ELE	105,334	kWh	
0490	Halbouty Geosciences Building	120,874	006896	CHW	1,623,560	mBtu	
0490	Halbouty Geosciences Building	120,874	006913	CHW	817,238	mBtu	
0490	Halbouty Geosciences Building	120,874	006900	HHW	279,452	mBtu	
0490	Halbouty Geosciences Building	120,874	006917	HHW	176,637	mBtu	
0492	Civil Engineering Building	56,537	005783	ELE	71,650	kWh	
0492	Civil Engineering Building	56,537	005950	CHW	492,669	mBtu	(2)
0492	Civil Engineering Building	56,537	005954	HHW	158,335	mBtu	(2)
0495	Sbisa Dining Hall	94,233	000352	ELE	155,202	kWh	
0495	Sbisa Dining Hall	94,233	000353	ELE	134,866	kWh	
0495	Sbisa Dining Hall	94,233	001951	CHW	2,158,626	mBtu	
0495	Sbisa Dining Hall	94,233	001957	HHW	191,643	mBtu	
0496	Utilities & Energy Services Central Office	46,110	007706	ELE	12,526	kWh	(2)
0496	Utilities & Energy Services Central Office	46,110	006929	CHW	203,916	mBtu	(2)
0496	Utilities & Energy Services Central Office	46,110	006933	HHW	28,725	mBtu	(2)
0499	Engineering Innovation Center	28,339	001561	ELE	26,668	kWh	
0499	Engineering Innovation Center	28,339	002672	CHW	118,519	mBtu	*, (2)
0499	Engineering Innovation Center	28,339	002683	HHW	28,678	mBtu	*, (2)
0501	Concrete Materials Laboratory	9,600	005791	ELE	7,915	kWh	
0506	Nagle Hall	32,306	001484	ELE	12,857	kWh	(2)
0506	Nagle Hall	32,306	003619	CHW	463,433	mBtu	(2)
0506	Nagle Hall	32,306	003623	HHW	12,353	mBtu	(2)
0507	Veterinary Medical Science Building	69,367	003013	ELE	76,814	kWh	
0507	Veterinary Medical Science Building	69,367	003640	CHW	1,460,399	mBtu	
0507	Veterinary Medical Science Building	69,367	003644	HHW	333,277	mBtu	
0508	Veterinary Teaching Hospital	96,416	003022	ELE	101,094	kWh	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004166	CHW	2,284,791	mBtu	
0508-1026	Veterinary Teaching Hospital and Veterinary Medicine Administration	191,096	004170	HHW	306,796	mBtu	
0511	Heep Laboratory Building	40,476	005787	ELE	66,284	kWh	
0511	Heep Laboratory Building	40,476	005821	CHW	592,531	mBtu	#, (1)
0511	Heep Laboratory Building	40,476	005825	HHW	154,446	mBtu	
0512	All Faiths Chapel	8,999	004340	ELE	7,234	kWh	
0512	All Faiths Chapel	8,999	004288	CHW	101,150	mBtu	
0512	All Faiths Chapel	8,999	004293	HHW	28,929	mBtu	#, (1)
0513	Doherty Building	42,336	000299	ELE	58,488	kWh	
0513	Doherty Building	42,336	002898	CHW	1,052,194	mBtu	
0513	Doherty Building	42,336	002902	HHW	238,575	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007558	ELE	13,932	kWh	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007487	CHW	128,596	mBtu	
0514	Munnerlyn Astronomy & Space Sciences Engineering	22,134	007491	HHW	3,850	mBtu	
0516	Computing Services Center	30,014	005259	ELE	497,201	kWh	
0516	Computing Services Center	30,014	003959	CHW	1,643,239	mBtu	
0516	Computing Services Center	30,014	003963	HHW	1	mBtu	
0520	Beutel Health Center	63,318	003785	ELE	72,936	kWh	(2)
0520	Beutel Health Center	63,318	003933	CHW	521,318	mBtu	
0520	Beutel Health Center	63,318	003944	HHW	36,261	mBtu	
0521	Heldenfels Hall	104,949	001547	ELE	114,442	kWh	
0521	Heldenfels Hall	104,949	002962	CHW	1,534,261	mBtu	
0521	Heldenfels Hall	104,949	002973	HHW	146,217	mBtu	
0524	Blocker building	257,953	001545	ELE	215,902	kWh	
0524	Blocker building	257,953	002914	CHW	1,629,778	mBtu	
0524	Blocker building	257,953	002918	HHW	2,448	mBtu	(2)
0548	Clements Residence Hall	62,156	000048	ELE	40,533	kWh	
0548	Clements Residence Hall	62,156	002729	CHW	1,168,187	mBtu	
0548	Clements Residence Hall	62,156	002740	HHW	355,152	mBtu	
0549	Haas Residence Hall	69,668	001398	ELE	49,853	kWh	*, #, (1)
0549	Haas Residence Hall	69,668	002983	CHW	1,088,983	mBtu	
0549	Haas Residence Hall	69,668	002994	HHW	522,776	mBtu	
0550	McFadden Residence Hall	62,156	000339	ELE	44,537	kWh	
0550	McFadden Residence Hall	62,156	002188	CHW	1,120,204	mBtu	
0550	McFadden Residence Hall	62,156	002192	HHW	494,042	mBtu	
0652	Neeley Residence Hall	69,668	000056	ELE	48,106	kWh	
0652	Neeley Residence Hall	69,668	002147	CHW	687,590	mBtu	
0652	Neeley Residence Hall	69,668	002151	HHW	169,089	mBtu	
0653	Hobby Residence Hall	62,156	000057	ELE	46,272	kWh	
0653	Hobby Residence Hall	62,156	002401	CHW	865,468	mBtu	
0653	Hobby Residence Hall	62,156	002405	HHW	257,917	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	005246	ELE	249,169	kWh	
0682	Wisenbaker Engineering Research Center	177,704	003879	CHW	1,991,007	mBtu	
0682	Wisenbaker Engineering Research Center	177,704	003883	HHW	132,072	mBtu	
0740	McNew Laboratory	20,904	005874	ELE	52,125	kWh	
0740	McNew Laboratory	20,904	005974	CHW	528,015	mBtu	
0740	McNew Laboratory	20,904	005968	HHW	83,633	mBtu	#, (1)
0806	Soil Testing Labs	5,544	006875	ELE	25,064	kWh	
0815	Entomology Research Lab	17,618	005799	ELE	34,460	kWh	
0815	Entomology Research Lab	17,618	006043	CHW	176,857	mBtu	
0880	TVMC-Small Animal Building	3,260	005958	CHW	36,440	mBtu	*, #, (1)
0880	TVMC-Small Animal Building	3,260	005962	HHW	102	mBtu	* (2)
0972	Laboratory Animal Care Building	52,178	007063	ELE	135,214	kWh	
0972	Laboratory Animal Care Building	52,178	007067	ELE	49,357	kWh	
0972	Laboratory Animal Care Building	52,178	007071	CHW	3,372,392	mBtu	
0972	Laboratory Animal Care Building	52,178	006991	HHW	126,781	mBtu	
1020	Vivarium III	12,234	005857	ELE	23,837	kWh	
1020	Vivarium III	12,234	005997	CHW	265,620	mBtu	*
1020	Vivarium III	12,234	006001	HHW	16,736	mBtu	*
1026	Veterinary Medicine Administration	94,680	006072	ELE	127,358	kWh	
1026	Veterinary Medicine Administration	94,680	006049	CHW	1,397,101	mBtu	
1026	Veterinary Medicine Administration	98,680	006053	HHW	317,066	mBtu	* (2)
1041	Texas Vet Med Diagnostic Lab	55,169	001466	ELE	98,157	kWh	*
1041	Texas Vet Med Diagnostic Lab	55,169	001539	ELE	74,055	kWh	*, #, (1)
1041	Texas Vet Med Diagnostic Lab	55,169	003817	CHW	1,102,495	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	004137	CHW	1,811,172	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	003821	HHW	73,728	mBtu	*
1041	Texas Vet Med Diagnostic Lab	55,169	004130	HHW	162,207	mBtu	*
NA	New TVMDL	NA	009174	CHW	816,649	mBtu	*
1042	Forest Science Laboratory Building	9,632	006036	ELE	34,585	kWh	
1085	Veterinary Small Animal Hospital	103,440	004136	ELE	240,522	kWh	
1085	Veterinary Small Animal Hospital	103,440	003656	CHW	2,485,915	mBtu	
1085	Veterinary Small Animal Hospital	103,440	003660	HHW	269,658	mBtu	
1089	Utilities Energy Office Annex	2,937	006964	ELE	5,312	kWh	
1146	Biological Control Facility	13,492	005795	ELE	30,991	kWh	(2)
1146	Biological Control Facility	13,492	005887	CHW	164,412	mBtu	
1146	Biological Control Facility	13,492	005891	HHW	28,247	mBtu	
1156	Physical Plant Administration & Shops	101,704	007483	ELE	147,994	kWh	
1156	Physical Plant Administration & Shops	101,704	007679	CHW	521,114	mBtu	(2)
1156	Physical Plant Administration & Shops	101,704	007683	HHW	71,954	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1184	Veterinary Anatomic Pathology	17,223	001445	ELE	53,609	kWh	
1184	Veterinary Anatomic Pathology	17,223	006995	CHW	743,072	mBtu	
1184	Veterinary Anatomic Pathology	17,223	006999	HHW	100,649	mBtu	
1194	Veterinary Large Animal Hospital	140,865	005256	ELE	109,135	kWh	
1194	Veterinary Large Animal Hospital	140,865	003016	ELE	72,445	kWh	
1194	Veterinary Large Animal Hospital	140,865	007455	ELE	40,212	kWh	
1194	Veterinary Large Animal Hospital	140,865	003648	CHW	3,081,015	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007456	CHW	274,347	mBtu	
1194	Veterinary Large Animal Hospital	140,865	003652	HHW	518,211	mBtu	
1194	Veterinary Large Animal Hospital	140,865	007457	HHW	34,652	mBtu	
1197	Veterinary Research Building	114,666	006355	ELE	71,015	kWh	(2)
1197	Veterinary Research Building	114,666	006359	ELE	34,293	kWh	(2)
1197	Veterinary Research Building	114,666	006062	CHW	3,519,604	mBtu	
1197	Veterinary Research Building	114,666	006066	HHW	309,603	mBtu	
1416	Hullabaloo Residence Hall	253,452	007845	ELE	195,808	kWh	
1416	Hullabaloo Residence Hall	253,452	007846	CHW	1,632,301	mBtu	
1416	Hullabaloo Residence Hall	253,452	007847	HHW	87,120	mBtu	
1450	University Apartments - Laundry at the Gardens	1,428	006885	ELE	8,108	kWh	
1451	University Apartments - The Gardens J	33,535	006981	ELE	23,552	kWh	
1452	University Apartments - The Gardens K	33,535	006979	ELE	NA	kWh	*
1453	University Apartments - The Gardens L	33,535	006884	ELE	24,575	kWh	
1454	University Apartments - The Gardens F	33,535	006980	ELE	22,512	kWh	*
1455	University Apartments - The Gardens G	33,535	006882	ELE	21,693	kWh	*
1456	University Apartments - The Gardens H	33,535	007962	ELE	23,700	kWh	
1457	University Apartments - The Gardens M	33,535	007503	ELE	28,439	kWh	
1458	University Apartments - The Gardens N	33,535	007504	ELE	25,205	kWh	
1459	University Apartments - The Gardens P	33,535	007505	ELE	26,891	kWh	
1460	University Apartments - The Gardens Q	33,535	007506	ELE	23,879	kWh	
1497	Utilities & Energy Services Business Office	3,480	007082	ELE	3,922	kWh	
1497	Utilities & Energy Services Business Office	3,480	006341	CHW	31,556	mBtu	
1497	Utilities & Energy Services Business Office	3,480	006345	HHW	8	mBtu	
1501	Kleberg Center	165,031	007449	ELE	281,925	kWh	
1501	Kleberg Center	165,031	002624	CHW	2,235,514	mBtu	(2)
1501	Kleberg Center	165,031	002628	HHW	609,349	mBtu	
1502	Heep Center	158,979	001556	ELE	340,371	kWh	
1502	Heep Center	158,979	002599	CHW	2,946,811	mBtu	
1502	Heep Center	158,979	002603	HHW	254,767	mBtu	
1503	Cater-Mattil Hall	27,958	007977	ELE	81,815	kWh	
1503	Cater-Mattil Hall	27,958	008001	CHW	757,032	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003975	ELE	278,734	kWh	
1504	Reynolds Medical Sciences Building	169,859	003989	CHW	3,056,446	mBtu	
1504	Reynolds Medical Sciences Building	169,859	003993	HHW	413,361	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	003627	ELE	140,933	kWh	
1505	Rosenthal Meat Science & Technology Center	30,889	002573	CHW	273,525	mBtu	
1505	Rosenthal Meat Science & Technology Center	30,889	002577	HHW	20,226	mBtu	(1)
1506	Horticulture-Forest Science Building	118,648	001544	ELE	175,356	kWh	
1506	Horticulture-Forest Science Building	118,648	003967	CHW	1,176,225	mBtu	
1506	Horticulture-Forest Science Building	118,648	003971	HHW	90,624	mBtu	
1507	Biochemistry-Biophysics Building	166,079	001459	ELE	182,538	kWh	
1507	Biochemistry-Biophysics Building	166,079	001460	ELE	165,148	kWh	
1507	Biochemistry-Biophysics Building	166,079	003025	CHW	3,231,878	mBtu	
1507	Biochemistry-Biophysics Building	166,079	003029	HHW	542,001	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	005638	ELE	27,702	kWh	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006005	CHW	232,571	mBtu	
1508	Price Hobgood Ag. Engineering Research Lab	27,666	006009	HHW	392	mBtu	
1509	Medical Sciences Library	84,183	000350	ELE	104,754	kWh	
1509	Medical Sciences Library	84,183	003777	CHW	929,784	mBtu	
1509	Medical Sciences Library	84,183	003781	HHW	34,427	mBtu	
1510	Wehner Building	259,681	006849	ELE	219,424	kWh	
1510	Wehner Building	259,681	006685	ELE	254,966	kWh	
1510	Wehner Building	259,681	002687	CHW	2,480,249	mBtu	
1510	Wehner Building	259,681	002691	HHW	168,645	mBtu	
1511	West Campus Library Facility	68,125	004342	ELE	98,810	kWh	
1511	West Campus Library Facility	68,125	004313	CHW	945,512	mBtu	
1511	West Campus Library Facility	68,125	004318	HHW	68,584	mBtu	
1512	Southern Crop Improvement Greenhouse	48,154	005931	ELE	95,546	kWh	(1)
1513	Borlaug Center for Southern Crop Improvement	68,739	005802	ELE	308,764	kWh	
1513	Borlaug Center for Southern Crop Improvement	68,739	005936	CHW	1,980,563	mBtu	
1513	Borlaug Center for southern Crop Improvement	68,739	005895	HHW	152,921	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1518	TX School of Rural Public Health A	69,079	005273	ELE	78,919	kWh	
1519	TX School of Rural Public Health B	24,761	005274	ELE	57,722	kWh	#, (1)
1520	TX School of Rural Public Health C	13,264	005275	ELE	102,165	kWh	#, (1)
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005294	CHW	1,829,481	mBtu	
1518-1519-1520	TX School of Rural Public Health A,B,C	107,104	005298	HHW	101,204	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006718	ELE	86,634	kWh	
1525	Nuclear Magnetic Resonance Facility	37,282	006715	CHW	1,176,672	mBtu	
1525	Nuclear Magnetic Resonance Facility	37,282	006716	HHW	350,712	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006286	ELE	415,967	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006288	ELE	211,762	kWh	
1530	Interdisciplinary Life Sciences Building	218,540	006290	CHW	5,609,368	mBtu	
1530	Interdisciplinary Life Sciences Building	218,540	006294	HHW	841,922	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007205	ELE	122,551	kWh	
1535	Agriculture and Life Sciences Building	168,353	007206	CHW	932,206	mBtu	
1535	Agriculture and Life Sciences Building	168,353	007207	HHW	17,526	mBtu	
1536	AgriLife Services Building	80,907	007571	ELE	48,312	kWh	
1536	AgriLife Services Building	80,907	007572	CHW	338,407	mBtu	
1536	AgriLife Services Building	80,907	007573	HHW	14,718	mBtu	
1538	Agriculture Program Visitors Center	12,923	007209	ELE	14,402	kWh	
1538	Agriculture Program Visitors Center	12,923	007210	CHW	118,882	mBtu	
1538	Agriculture Program Visitors Center	12,923	007211	HHW	7,497	mBtu	
1540	Physical Education Activity Program Building	116,900	007881	ELE	79,156	kWh	
1540	Physical Education Activity Program Building	116,900	007878	CHW	759,650	mBtu	
1540	Physical Education Activity Program Building	116,900	007879	HHW	99,285	mBtu	
1550	Olsen Field at Bluebell Park	60,537	007560	ELE	119,365	kWh	
1554	Reed Arena	230,000	007582	ELE	160,272	kWh	
1554	Reed Arena	230,000	006243	ELE	813	kWh	(1)
1554	Reed Arena	230,000	006244	ELE	74,679	kWh	
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007576	CHW	2,694,542	mBtu	
1554-1558	Reed Arena and Cox-McFerrin Center	328,185	007578	HHW	467,751	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007581	ELE	78,854	kWh	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007575	CHW	573,533	mBtu	
1558	Cox-McFerrin Center for Aggie Basketball	98,185	007577	HHW	181,858	mBtu	
1559	West Campus Parking Garage	1,541,457	001453	ELE	173,431	kWh	
1559	West Campus Parking Garage	13,000	004322	CHW	87,262	mBtu	
1559	West Campus Parking Garage	13,000	004327	HHW	6,062	mBtu	
1560	Student Recreation Center	334,642	000363	ELE	337,276	kWh	
1560	Student Recreation Center	334,642	000366	ELE	429,569	kWh	
1560	Student Recreation Center	334,642	002933	CHW	6,506,243	mBtu	
1560	Student Recreation Center	334,642	002937	HHW	1,307,931	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009197	ELE	112,281	kWh	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009198	CHW	1,002,403	mBtu	
1589-1590	White Creek Apartment 1 and White Creek Apts Activity Center	176,454	009199	HHW	86,011	mBtu	
1591	White Creek Apartment 2	179,467	008528	ELE	133,742	kWh	
1591	White Creek Apartment 2	179,467	008529	CHW	932,001	mBtu	
1591	White Creek Apartment 2	179,467	008533	HHW	77,906	mBtu	
1592	White Creek Apartment 3	179,467	008538	ELE	126,181	kWh	
1592	White Creek Apartment 3	179,467	008539	CHW	1,002,325	mBtu	
1592	White Creek Apartment 3	179,467	008543	HHW	96,201	mBtu	
1600	Gilchrist TTI Building	67,143	005286	ELE	54,698	kWh	*
1600	Gilchrist TTI Building	67,143	002649	CHW	550,323	mBtu	
1600	Gilchrist TTI Building	67,143	002653	HHW	47,994	mBtu	
1601	International Ocean Discovery Building	86,576	006351	ELE	133,410	kWh	(2)
1601	International Ocean Discovery Building	86,576	006382	CHW	309,319	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008144	CHW	72,366	mBtu	(2)
1601	International Ocean Discovery Building	86,576	008145	HHW	8,630	mBtu	(2)
1604	Offshore Technology Research Center	40,014	006659	ELE	86,424	kWh	
1604	Offshore Technology Research Center	40,014	006660	ELE	0	kWh	
1604	Offshore Technology Research Center	40,014	008142	CHW	604,225	mBtu	
1604	Offshore Technology Research Center	40,014	008143	HHW	107,849	mBtu	
1606	George Bush Presidential Library & Museum	121,678	000244	ELE	112,151	kWh	
1606	George Bush Presidential Library & Museum	121,678	002808	CHW	1,516,933	mBtu	
1606	George Bush Presidential Library & Museum	121,678	002812	HHW	288,018	mBtu	
1607	Allen Building	133,327	000243	ELE	101,341	kWh	
1607	Allen Building	133,327	002800	CHW	779,808	mBtu	
1607	Allen Building	133,327	002804	HHW	18,945	mBtu	
1608	Annenberg Presidential Conference Center	65,688	000245	ELE	71,441	kWh	
1608	Annenberg Presidential Conference Center	65,688	002761	CHW	1,009,126	mBtu	
1608	Annenberg Presidential Conference Center	65,688	002765	HHW	282,872	mBtu	

Table I-1 September 2016 Monthly Consumption for TAMU Buildings (*Continued*)

TAMU#	Building Name	Area (ft^2)	MeterID	Type	Monthly Consumption	Units	Comments
1609	TTI Headquarters	66,707	006495	ELE	57,336	kWh	
1609	TTI Headquarters	66,707	006496	CHW	493,486	mBtu	
1609	TTI Headquarters	66,707	006497	HHW	35,107	mBtu	
1611	Engineering Research Building	68,807	008462	ELE	183,314	kWh	
1611	Engineering Research Building	68,807	008463	CHW	2,585,499	mBtu	
1611	Engineering Research Building	68,807	008467	HHW	420,669	mBtu	
1800	General Services Complex	203,369	005441	ELE	198,791	kWh	
1800	General Services Complex	203,369	005468	CHW	1,207,835	mBtu	
1800	General Services Complex	203,369	005472	HHW	39,539	mBtu	
1810	Office of the State Chemist Building	31,735	009073	ELE	60,438	kWh	*
1810	Office of the State Chemist Building	31,735	005460	CHW	730,954	mBtu	
1810	Office of the State Chemist Building	31,735	005464	HHW	74,181	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006705	ELE	221,255	kWh	
1811	Vet Med Research Bldg Addition	52,993	006706	CHW	1,841,271	mBtu	
1811	Vet Med Research Bldg Addition	52,993	006707	HHW	283,301	mBtu	
1812	Veterinary Medicine Building 1	138,460	009404	ELE	157,684	kWh	*
1813	Veterinary Medicine Building 2	116,492	009418	ELE	1,352	kWh	*, (2)
1814	Veterinary Medicine Building 3	135,470	009405	ELE	186,602	kWh	*
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009406	CHW	4,798,699	mBtu	*
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	390,422	009410	HHW	534,297	mBtu	*
1900	Texas Institute for Genomic Medicine	34,120	005548	ELE	88,029	kWh	
1900	Texas Institute for Genomic Medicine	34,120	005545	CHW	1,989,044	mBtu	
1900	Texas Institute for Genomic Medicine	34,120	005546	HHW	277,372	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006364	ELE	258,970	kWh	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006365	CHW	3,526,579	mBtu	
1904	Texas A&M Institute for Preclinical Studies A	113,559	006366	HHW	570,995	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007517	ELE	197,968	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007518	ELE	164,904	kWh	
1910	National Center for Therapeutics Manufacturing	149,924	007519	CHW	5,391,887	mBtu	
1910	National Center for Therapeutics Manufacturing	149,924	007520	HHW	1,026,662	mBtu	
1911	Multi-Species Research Building	21,000	009138	ELE	25,138	kWh	
1911	Multi-Species Research Building	21,000	009129	CHW	538,728	mBtu	
1911	Multi-Species Research Building	21,000	009133	HHW	148,058	mBtu	
10226	NCTM Manufacturing Building	113,397	007648	CHW	4,682,830	mBtu	
10226	NCTM Manufacturing Building	113,397	007649	HHW	799,505	mBtu	
10226	NCTM Manufacturing Building	113,397	008133	HHW	115,905	mBtu	

1 mBtu = 1 000 Btu

NA: Not available
Monthly consumption in blue: Modified values
* : Missing data
# : Questionable data
(1): Consumption estimated and documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 2*
(2): Observation(s) documented in the report *Part II - Data Analysis: Energy Use Estimation and Observations Section 3*
(3): Missing data or changed consumption levels due to construction

II. Data Analysis: Energy Use Estimation and Observation

II-1 Meters with Missing Energy Consumption Data

During the month of September 2016, 54 meters in 32 buildings and complexes have missing daily data. The missing data have been filled in using consumption models based on the past data if available or using linear interpolation or some sort of average, and the monthly consumption has been estimated with the filled-in daily consumption. Table II-1 is the list of meters with missing data.

Table II-1 Meters with missing data during September 2016

Building No.	Building Name	MeterID	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0400-0402-1405	Spence Hall, Briggs Hall, and Ash II LLC	009386	ELE	kWh	85,994	92,136	2	A	A																										
0400	Spence Hall Dorm 1	009290	ELE	kWh	13,023	13,953	2	A	A																										
0400	Spence Hall Dorm 1	009291	ELE	kWh	16,785	17,984	2	A	A																										
1405	Ash II LLC	009387	CHW	mBtu	402,159	430,885	2	A	A																										
1405	Ash II LLC	009391	HHW	mBtu	126,272	135,291	2	A	A																										
0402	Briggs Hall Dorm 3	009322	ELE	kWh	16,502	17,681	2	A	A																										
0402	Briggs Hall Dorm 3	009323	ELE	kWh	12,911	13,834	2	A	A																										
0401-0403-1404	Kiest Hall, Fountain Hall, and Plank LLC	009370	ELE	kWh	84,545	90,584	2	A	A																										
0401	Kiest Hall Dorm 2	009306	ELE	kWh	13,765	14,748	2	A	A																										
0401	Kiest Hall Dorm 2	009307	ELE	kWh	13,582	14,552	2	A	A																										
1404	Plank LLC	009372	CHW	mBtu	489,775	*	1																			A									
1404	Plank LLC	009376	HHW	mBtu	149,800	*	1																			A									
0403	Fountain Hall Dorm 4	009338	ELE	kWh	14,774	15,829	2	A	A																										
0403	Fountain Hall Dorm 5	009339	ELE	kWh	12,060	12,921	2	A	A																										
0404	Gainer Hall Dorm 5	009354	ELE	kWh	13,179	14,121	2	A	A																										
0404	Gainer Hall Dorm 5	009355	ELE	kWh	11,424	12,240	2	A	A																										
0419	Legett Residence Hall	000031	ELE	kWh	NA	16,048	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
0419	Legett Residence Hall	002218	CHW	mBtu	NA	247,943	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0419	Legett Residence Hall	002222	HHW	mBtu	NA	47,067	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0443	Oceanography & Meteorology Building	006388	CHW	mBtu	362,081	1,451,956	22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M							
0443	Oceanography & Meteorology Building	006392	HHW	mBtu	32,918	185,124	22	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M							
0468	Evans Library	000320	ELE	kWh	89,630	*	1										M																		
0468	Evans Library	006429	ELE	kWh	95,244	*	1																									M			
0468	Evans Library	003903	CHW	mBtu	13,558	323,411	6															M	M	M	M	M									
0468	Evans Library	003911	CHW	mBtu	762,998	1,355,875	6															M	M	M	M	M									
0468	Evans Library	003907	HHW	mBtu	36,865	50,247	6															M	M	M	M	M									
0468	Evans Library	003922	HHW	mBtu	25,663	43,366	6															M	M	M	M	M									
0468	Evans Library	005303	HHW	mBtu	56,003	*	6															M	M	M	M	M									
0476	Francis Hall	008015	ELE	kWh	26,624	39,160	30	M	M	M	M	M	M	M	M	M	M																		
0481	Heaton Hall	005712	ELE	kWh	NA	***	10																												
0499	Engineering Innovation Center	002672	CHW	mBtu	15,409	118,519	26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
0499	Engineering Innovation Center	002683	HHW	mBtu	5,100	28,678	26	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			
549	Haas Residence Hall	001398	ELE	kWh	40,400,641	**	6		LI	LI	LI		LI	LI																					LI
880	TVMC-Small Animal Building	005958	CHW	mBtu	1,766	**	5															M	M	M	M	M									
880	TVMC-Small Animal Building	005962	HHW	mBtu	102	*	5																												
1020	Vivarium III	005997	CHW	mBtu	168,575	265,620	12																			M	M	M	M	M	M	M	M	M	M
1020	Vivarium III	006001	HHW	mBtu	4,279	16,736	12																			M	M	M	M	M	M	M	M	M	M
1026	Veterinary Medicine Administration	006053	HHW	mBtu	NA	317,066	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	001466	ELE	kWh	NA	98,157	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	001539	ELE	kWh	71,292,645	**	2																											M	M
1041	Texas Vet Med Diagnostic Lab	003817	CHW	mBtu	NA	1,102,495	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004137	CHW	mBtu	NA	1,811,172	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	003821	HHW	mBtu	NA	73,728	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab	004130	HHW	mBtu	NA	162,207	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
NA	New TVMDL	009174	CHW	mBtu	634,333	816,649	8	A	A	A	A	A	A													A									
1452	University Apartments - The Gardens K	006979	ELE	kWh	NA	NA	30																												
1454	University Apartments - The Gardens F	006980	ELE	kWh	NA	22,512	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1455	University Apartments - The Gardens G	006882	ELE	kWh	NA	21,693	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1600	Gilchrist TTI Building	005286	ELE	kWh	54,698	*	1																							M					
1810	Office of the State Chemist Building	009073	ELE	kWh	NA	60,438	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1812	Veterinary Medicine Building 1	009404	ELE	kWh	NA	157,684	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1813	Veterinary Medicine Building 2	009418	ELE	kWh	NA	1,352	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1814	Veterinary Medicine Building 3	009405	ELE	kWh	NA	186,602	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	009406	CHW	mBtu	4,798,699	*	1																												
1812-1813-1814	Veterinary Medicine Building 1, 2 and 3	009410	HHW	mBtu	534,297	*	1																												

* Monthly consumption evaluated from the cumulative data is not affected by the missing data.
** See Table II-2 for the estimated consumption.
*** Consumption is not estiamted because reliable consumtpion model is not available.
NA: Not available

II-2 Meters with Estimated Consumption for Problematic Data

During the month of September 2016, 29 meters in 25 buildings have estimated daily consumption because the recorded consumption is found to be problematic or questionable. For each of these meters, alternative consumption has been estimated using the best possible method. Table II-2 lists these meters with indications of the days with estimated data. Detailed descriptions for individual cases follow.

Table II-2 Meters with problematic data during September 2016

Building No.	Building Name /MeterID(s)	Type	Unit	Original Monthly Consumption	Estimated Monthly Consumption	# of days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0291	Rudder Residence Hall																																			
	002132	CHW	mBtu	1,060,288	849,148	28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
	002136	HHW	mBtu	451,179	262,955	28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
0376	Chemistry Building Addition																																			
	007119	HHW	mBtu	1,211,443	777,310	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1402	Buzbee Leadership Learning Center																																			
	007725	CHW	mBtu	432,919	225,398	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0430	Schumacher Residence Hall																																			
	002030	HHW	mBtu	23,620	18,173	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0441	Krueger Residence Hall																																			
	002504	CHW	mBtu	1,018,215	1,054,043	5																										M	M	M	M	M
	002500	HHW	mBtu	106,663	349,513	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0442	Dunn Residence Hall																																			
	002515	HHW	mBtu	165,264	194,118	15														M	M	M	M	M	M	M	M	M	M	M	M	M	M			
0447	Aston Residence Hall																																			
	002474	CHW	mBtu	865,475	1,201,394	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
	002470	HHW	mBtu	225,394	332,429	15														M	M	M	M	M	M	M	M	M	M	M	M	M	M			
0444	Peterson Building																																			
	006435	HHW	mBtu	1,438,043	156,552	9																					M	M	M	M	M	M	M	M	M	M
0517	DPC Annex																																			
	006567	HHW	mBtu	112,624	253,244	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0448	Adams Band Hall																																			
	002555	CHW	mBtu	507,829	511,360	2																												M	M	
	002566	HHW	mBtu	234,965	242,224	2																												M	M	
0454	MSC																																			
	007585	HHW	mBtu	4,048,772	244,622	25						M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0456	Military Sciences Building																																			
	006943	HHW	mBtu	273,184	145,110	21				M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M						
0467	Biological Sciences Building - East																																			
	003851	CHW	mBtu	1,210,030	1,043,668	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0483	Thompson Hall																																			
	003887	CHW	mBtu	NA	335,425	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0511	Heep Laboratory Building																																			
	005821	CHW	mBtu	711,834	592,531	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0512	All Faiths Chapel																																			
	004293	HHW	mBtu	0	28,929	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0549	Haas Residence Hall																																			
	001398	ELE	kWh	**	49,853	24	F				F		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
0740	McNew Laboratory																																			
	005968	HHW	mBtu	0	83,633	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
0880	Small Animal Building																																			
	005958	CHW	mBtu	**	1,730	25	M	M	M	M	M	M	M	M	M	M	M	M	M	M						M	M	M	M	M	M	M	M	M	M	M
1041	Texas Vet Med Diagnostic Lab																																			
	001539	ELE	kWh	**	74,055	28	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
1505	Rosenthal Meat Science & Technology Center																																			
	002577	HHW	mBtu	110,418	20,226	25						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
1512	Southern Crop Improvement Greenhouse																																			
	005931	ELE	kWh	110,565	95,546	7	M	M	M	M	M	M	M																							
1519	TX School of Rural Public Health B																																			
	005274	ELE	kWh	102,165	57,722	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1520	TX School of Rural Public Health C																																			
	005275	ELE	kWh	57,722	102,165	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
1554	Reed Arena																																			
	006243	ELE	kWh	207	813	30	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

NA: Not available

** See Table II-1 for the original consumption.

Notes: The colored cells means the consumption for the day appears to be problematic. The letter in the colored cell indicates the method for estimation. M: model, F: multiplication factor, L: linear interpolation, A: average, and C: correction of the reset cumulative reading

Rudder Residence Hall (TAMU Bldg #291)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002132	28	9/1/2016 – 9/28/2016	Model
HHW	002136	28	9/1/2016 – 9/28/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is higher than the level during the past year.	8/13/2016 – 9/28/2016
HHW	The consumption level is higher than the level during the past year.	8/13/2016 – 9/28/2016

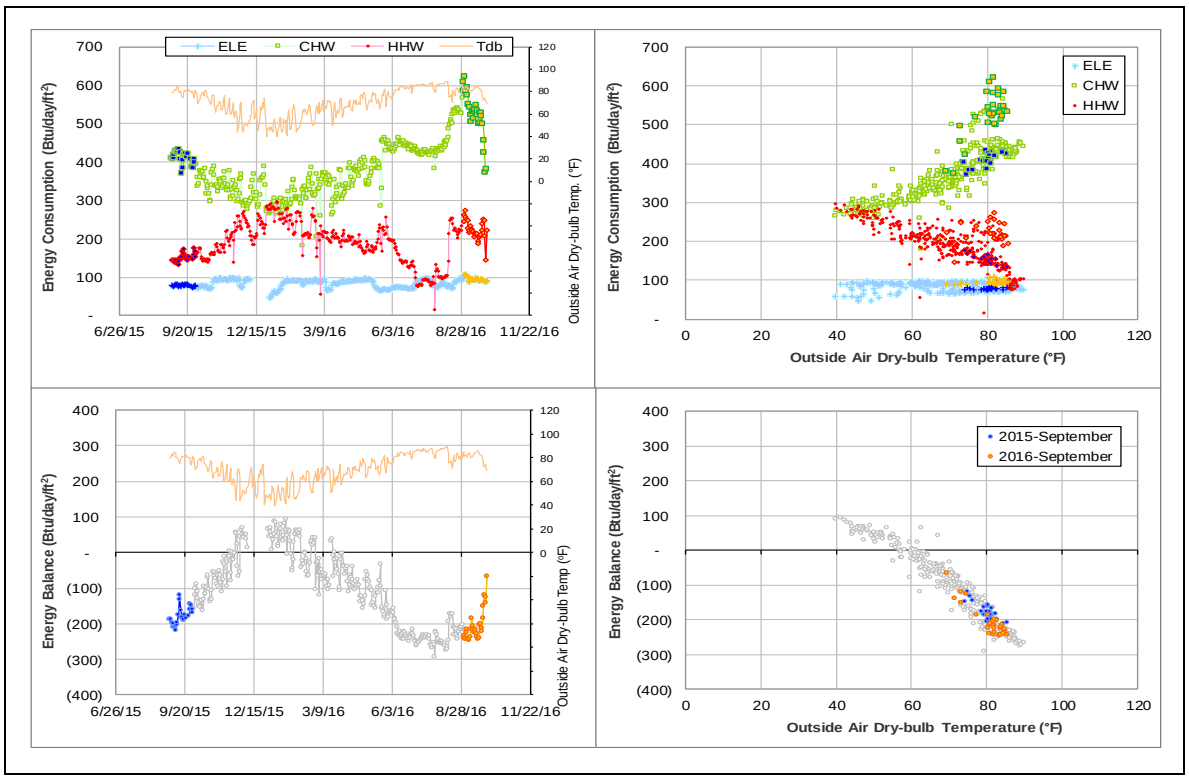
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002132	8/14/2016 – 9/7/2016	Flow Rate	High
		9/8/2016 – 9/28/2016	Flow Rate	Low
			Delta-T	High
HHW	002136	8/14/2016 – 9/7/2016	Flow Rate	High
			Delta-T	High
		8/30/2016 – 9/28/2016	Flow Rate	High
			Delta-T	Low

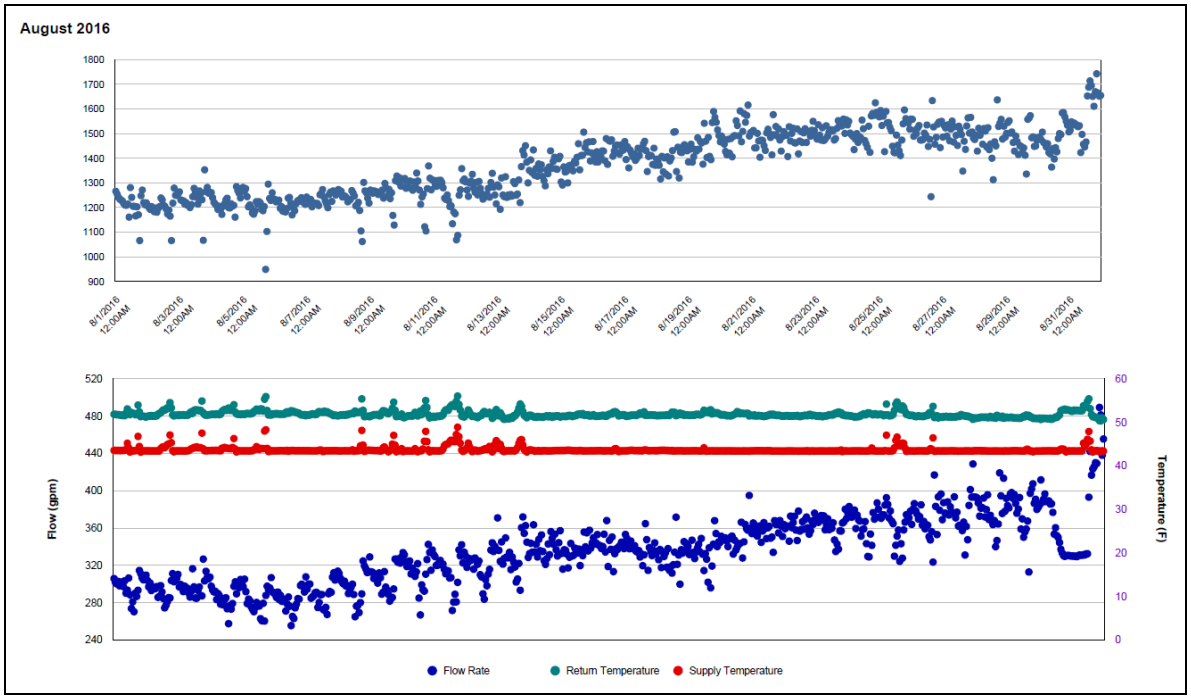
Quantitative descriptions and comments

Both CHW and HHW increased to a level significantly higher than last year. CHW saw a gradual increase in flow rate starting 8/13/2016 from circa 300 gpm to circa 460 gpm and pulled the consumption up by more than 150 Btu/day-sf higher than last year. Although The flow rate dropped down to 320 gpm on 9/7/2016, Delta-T had a simultaneous increase which retained the high consumption level with only a 50 Btu/day-sf decrease. In the meantime, HHW saw a rapid two-step increase on 8/14/2016 by more than 100 Btu/day-sf with increase in both flow rate (35 to 50 gpm) and Delta-T. The flow rate started to further increase on 8/30 and reached 110 gpm on 9/1/2016, but Delta-T decreased accordingly so the consumption did not have significant change. Both CHW and HHW fell back to normal consumption level after 9/28/2016. Models are used to estimate the consumption of these periods. See also section II-3.

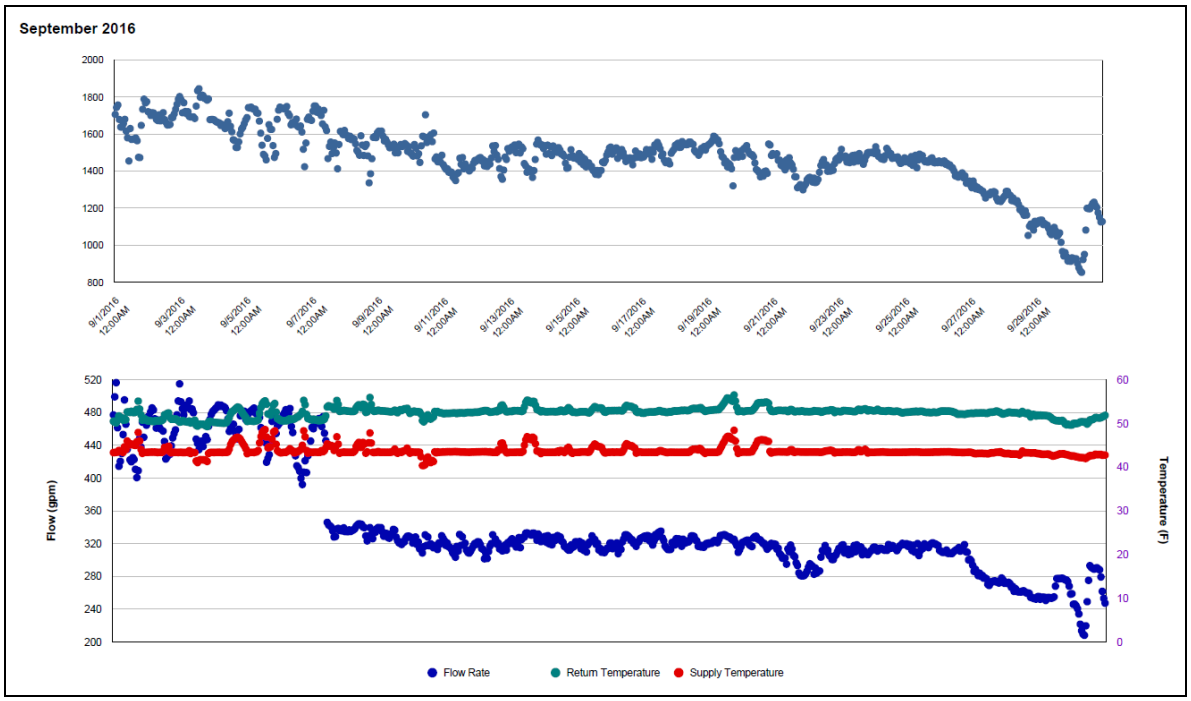
Explanatory Figure: 13 months energy balance plot with original data



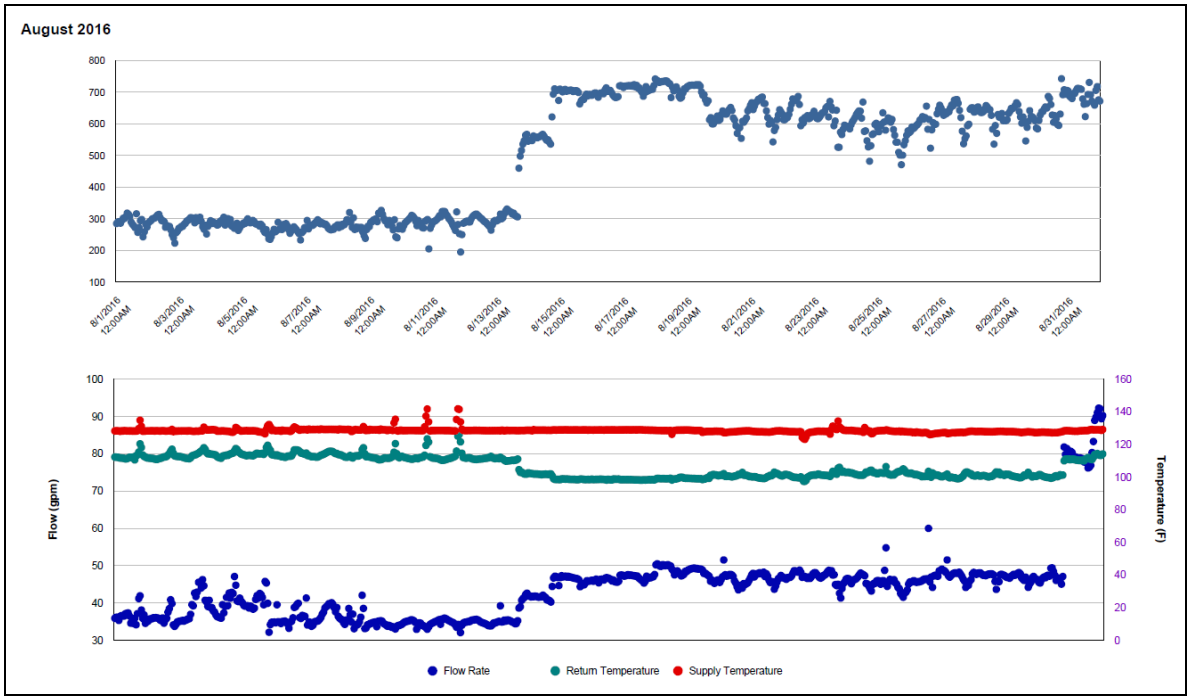
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during August 2016)



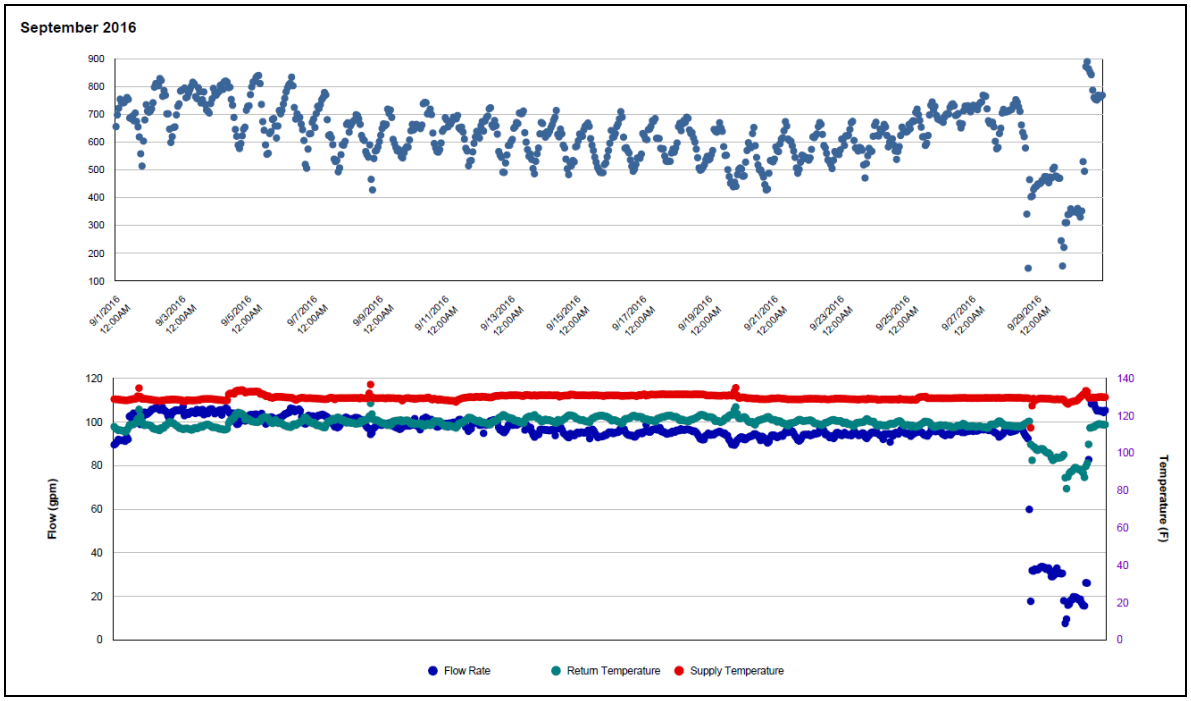
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



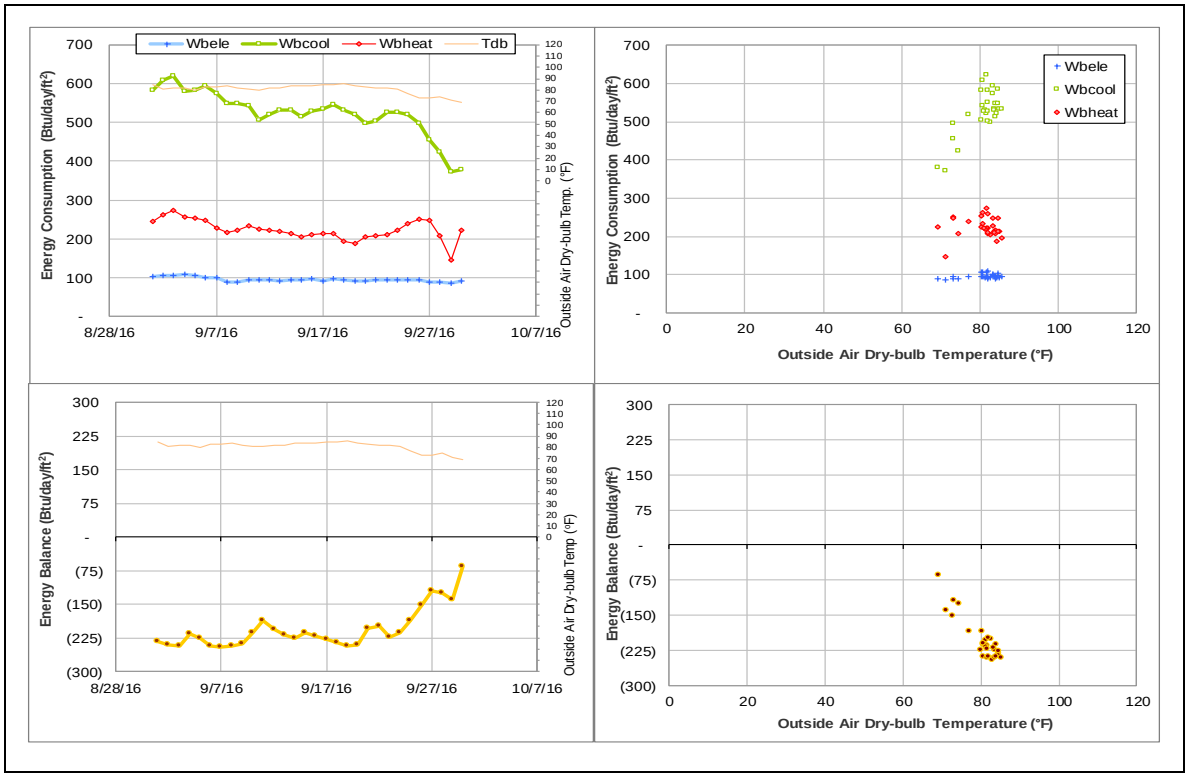
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



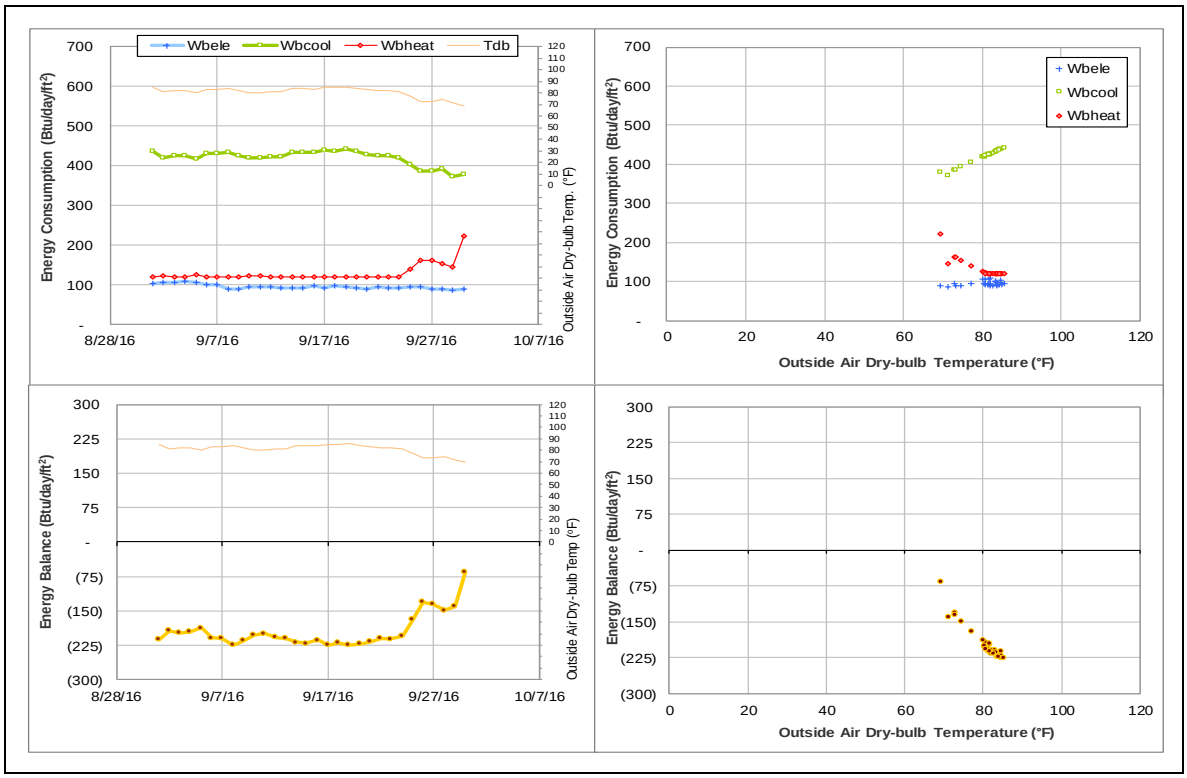
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Chemistry Building Addition (TAMU Bldg #376)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007119	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is increasing gradually.	8/11/2016 – 8/15/2016
	The metered values appear to be faulty.	8/22/2016 – 9/30/2016

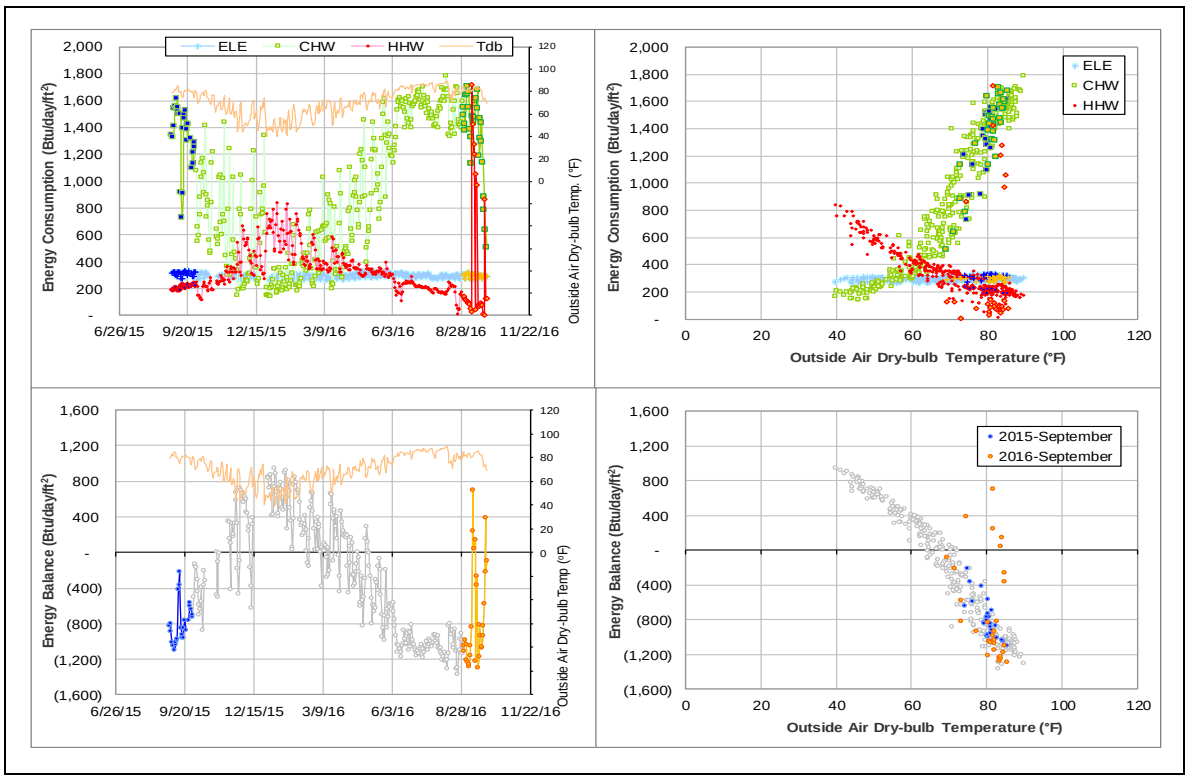
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007119	8/11/2016 – 8/15/2016	Flow Rate	High
		8/12/2016 – 9/30/2016	Supply Temp and/or Return Temp	Faulty

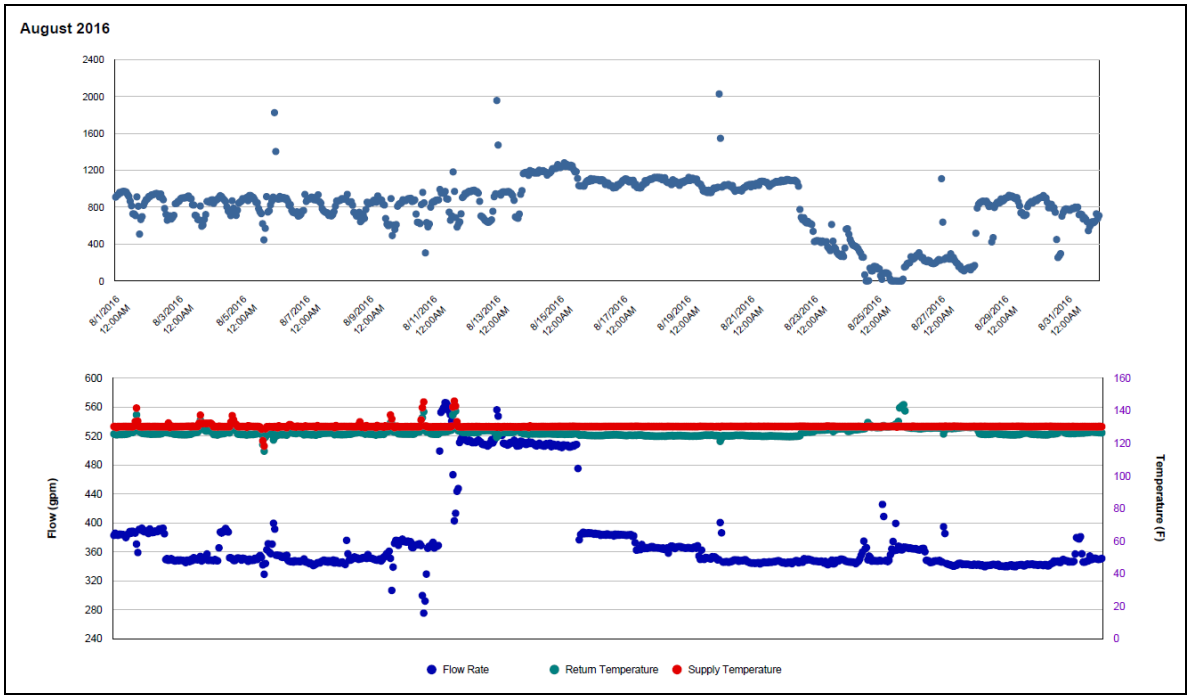
Quantitative descriptions and comments

Starting 8/12/2016, the temp readings for HHW meter have faulty. The Supply temp readings seem to be constant on 8/12 – 9/4/2016, which contains a period of negative Delta-T during 8/22 – 8/28. In 9/2016, Return Temp readings saw scattering in the time series plot and showed obviously erroneous values (varied in the range of 40°F - 190°F). The consumption calculation is based on these faulty values, therefore the whole month is estimated by a model.

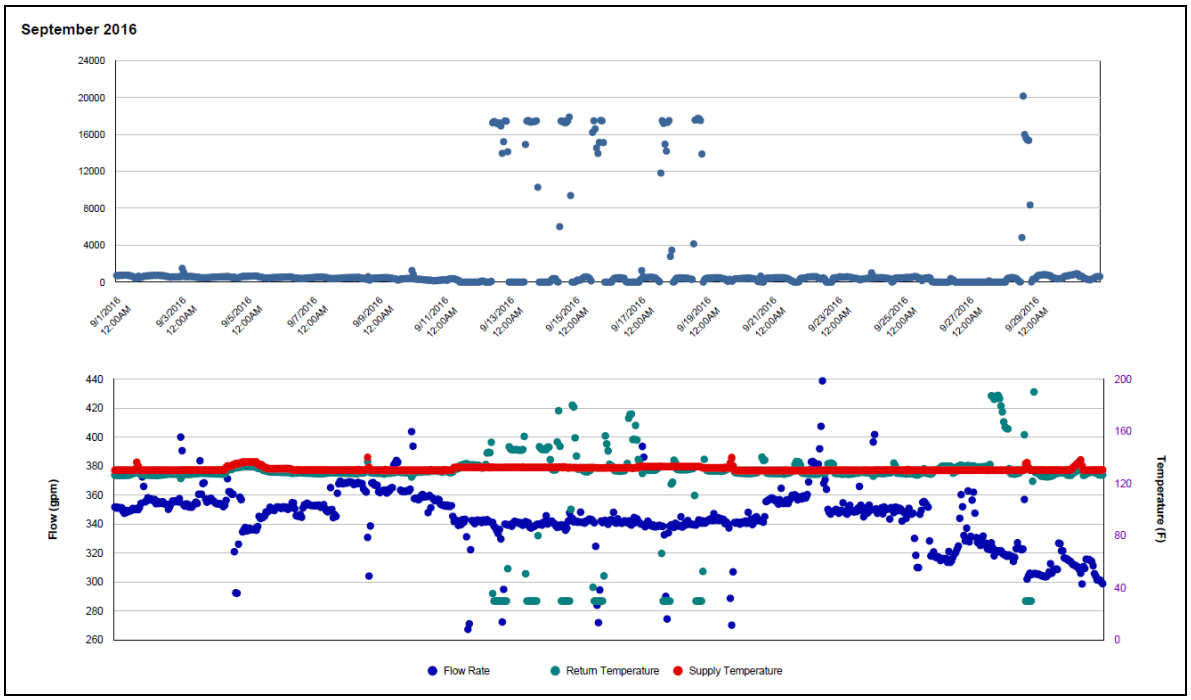
Explanatory Figure: 13 months energy balance plot with original data



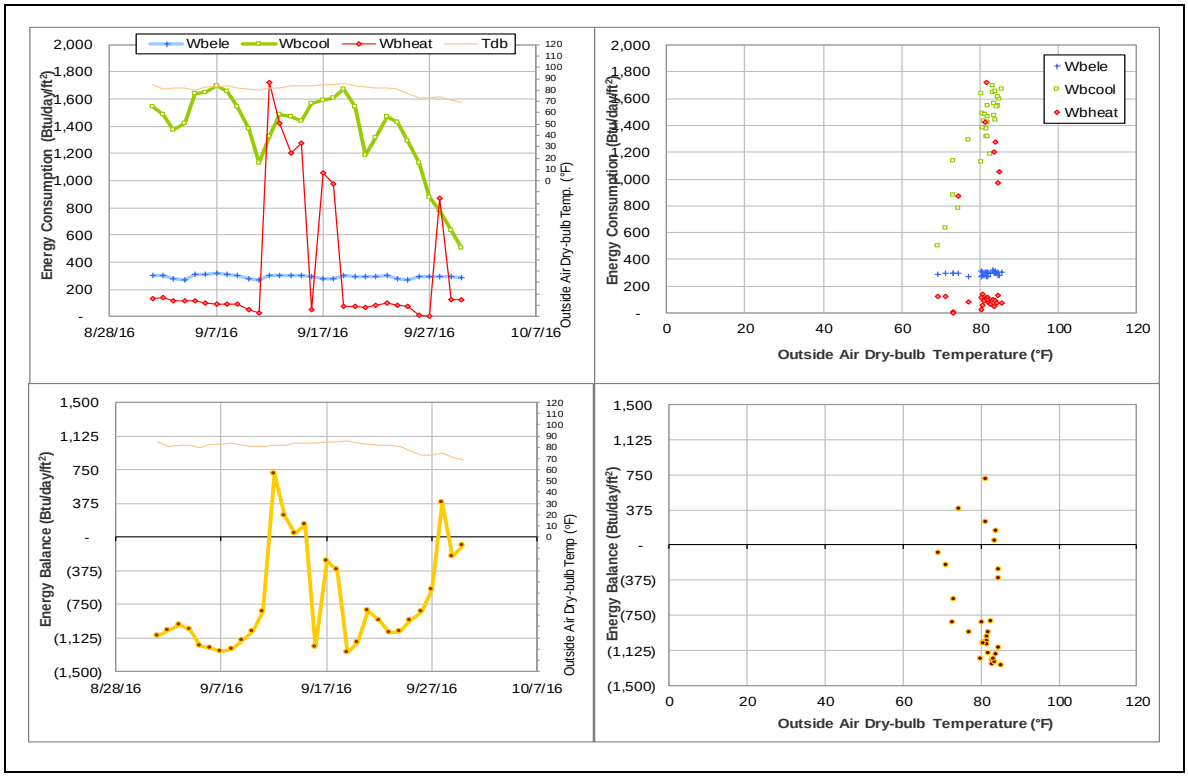
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



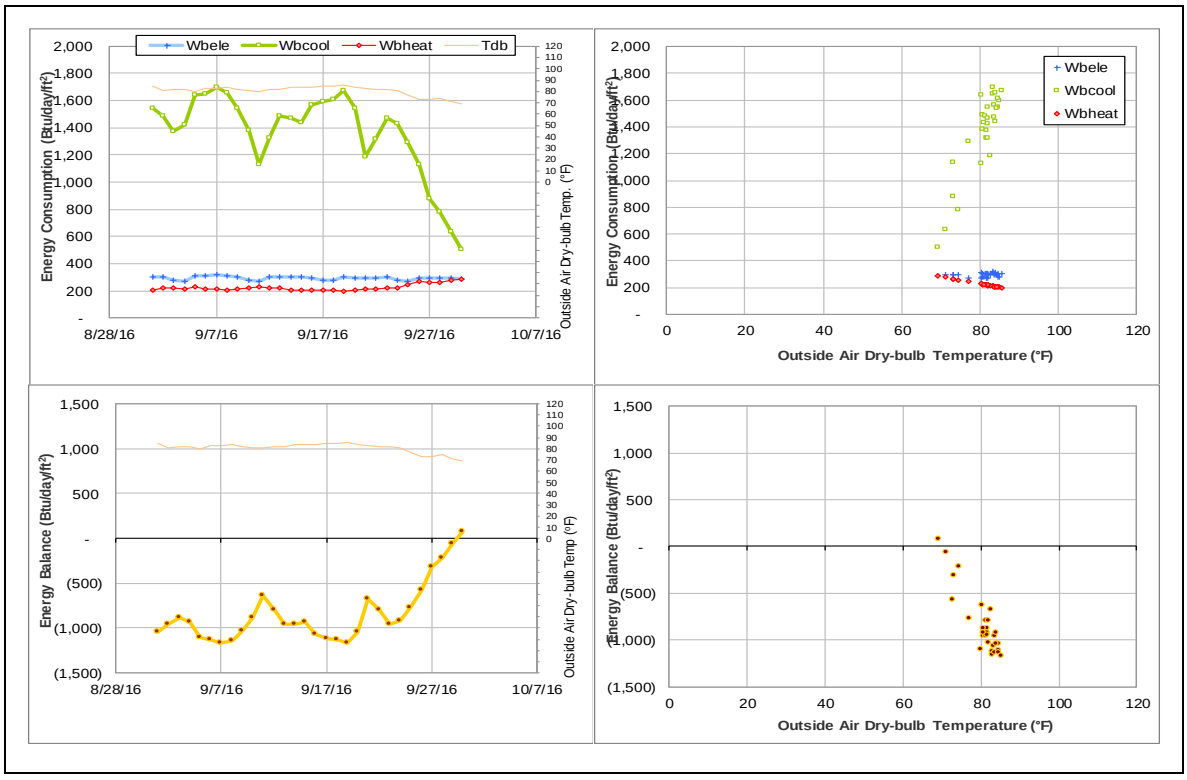
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Buzbee Leadership Learning Center (TAMU Bldg #1402)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	007725	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level has increased suddenly.	8/5/2016 – ongoing

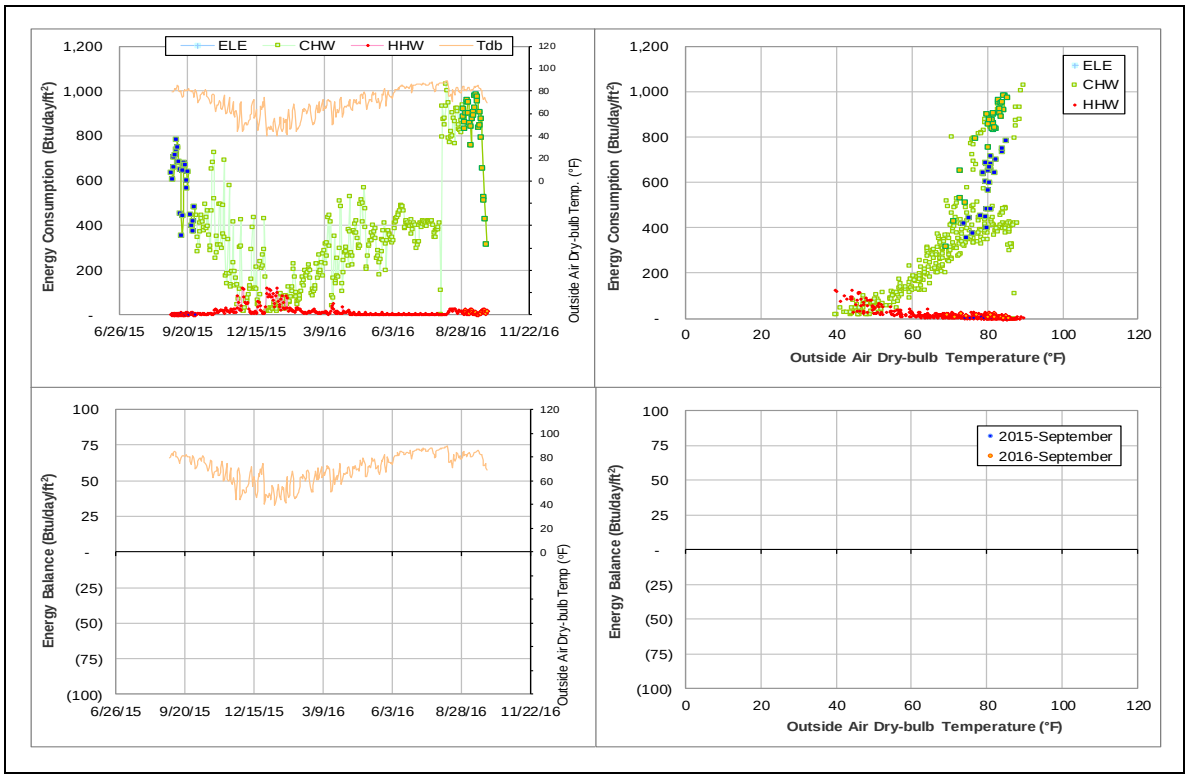
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	007725	8/3/2016 – 8/5/2016	Flow Rate	Zero
		8/5/2016 – 9/30/2016	Flow Rate	High

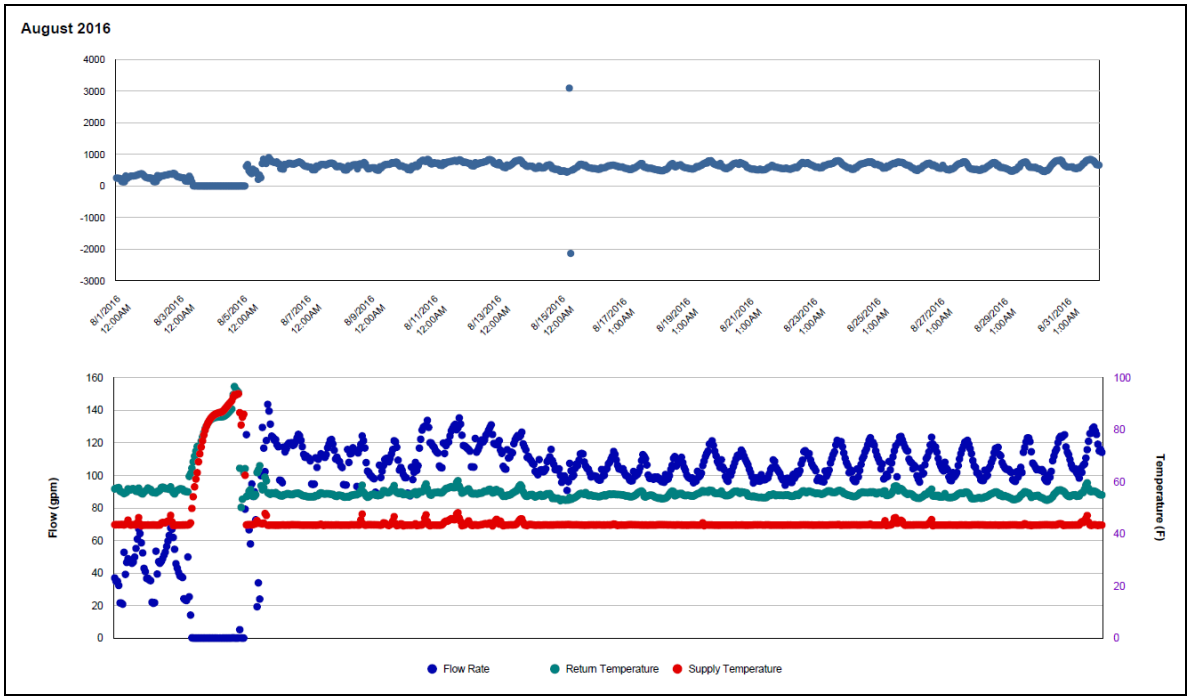
Quantitative descriptions and comments

After a short period of shut down on 8/3 – 8/5/2016, CHW drastically increased from 300 Btu/day-sf to 650 Btu/day-sf due to a flow rate increase from 40 gpm to 110 gpm. The whole month consumption is estimated by a model.

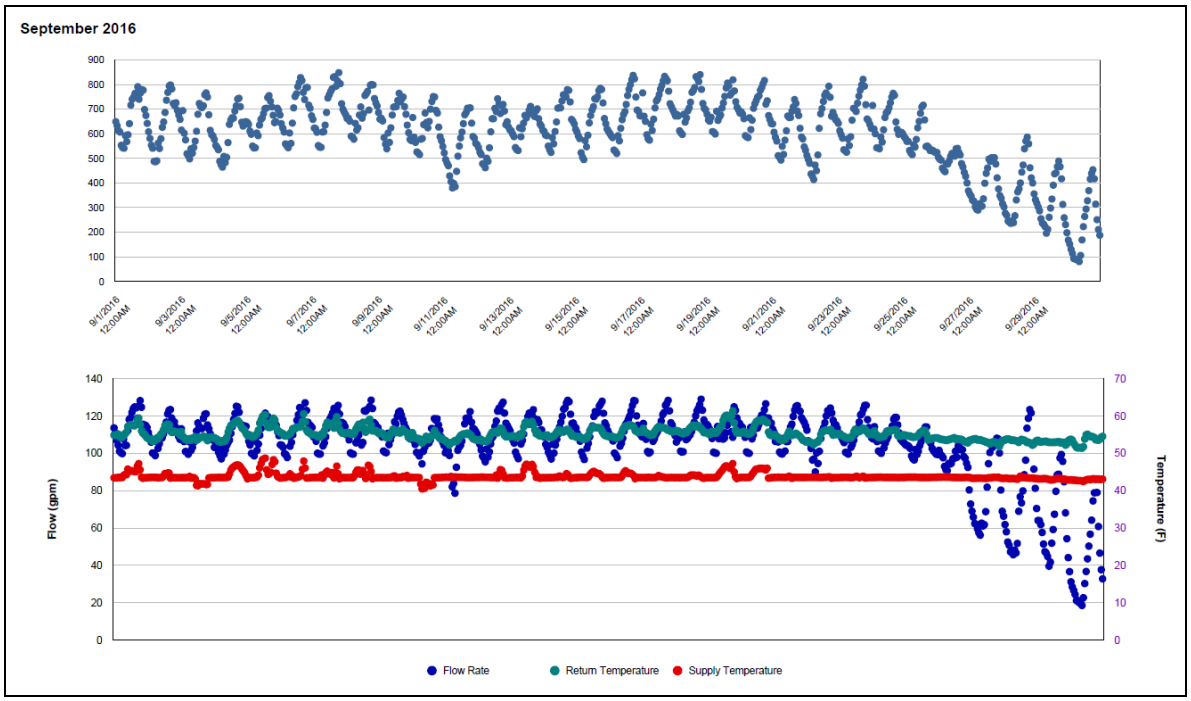
Explanatory Figure: 13 months energy balance plot with original data



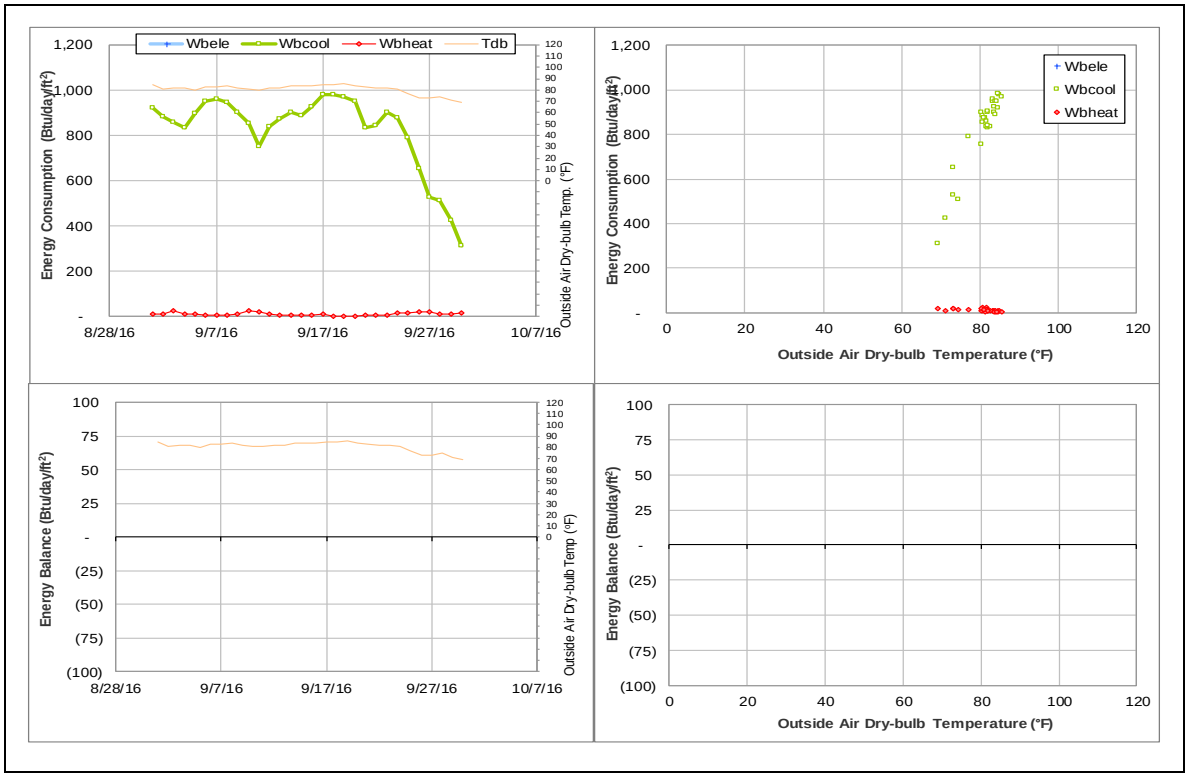
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during August 2016)



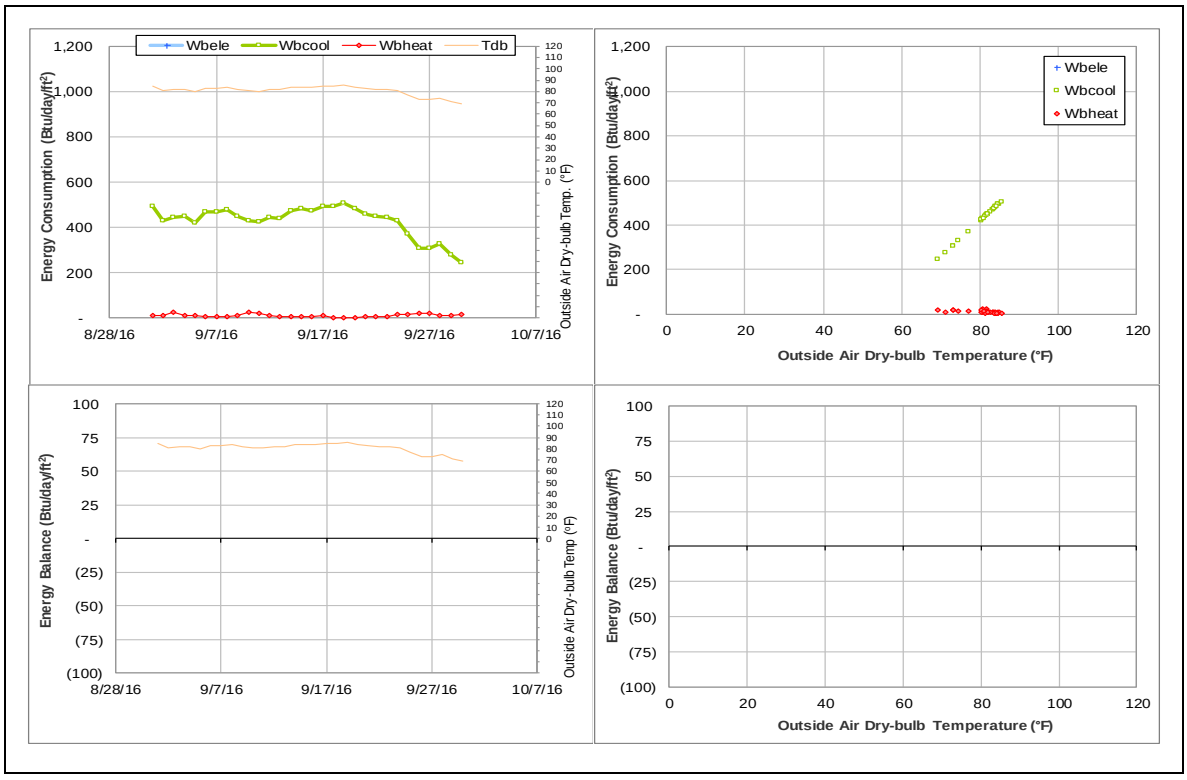
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Schumacher Residence Hall (TAMU Bldg #430)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002030	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The metered values appear to be faulty.	8/29/2016 – 9/30/2016

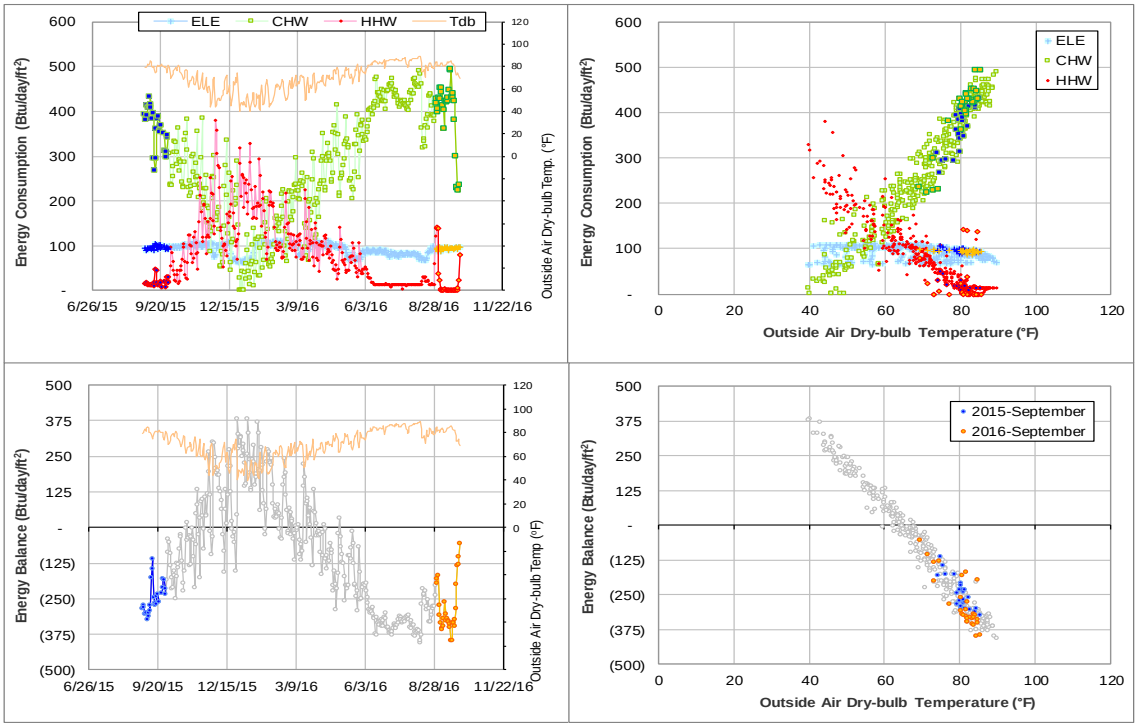
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002030	8/19/2016 – 9/30/2016	Supply Temp	Faulty

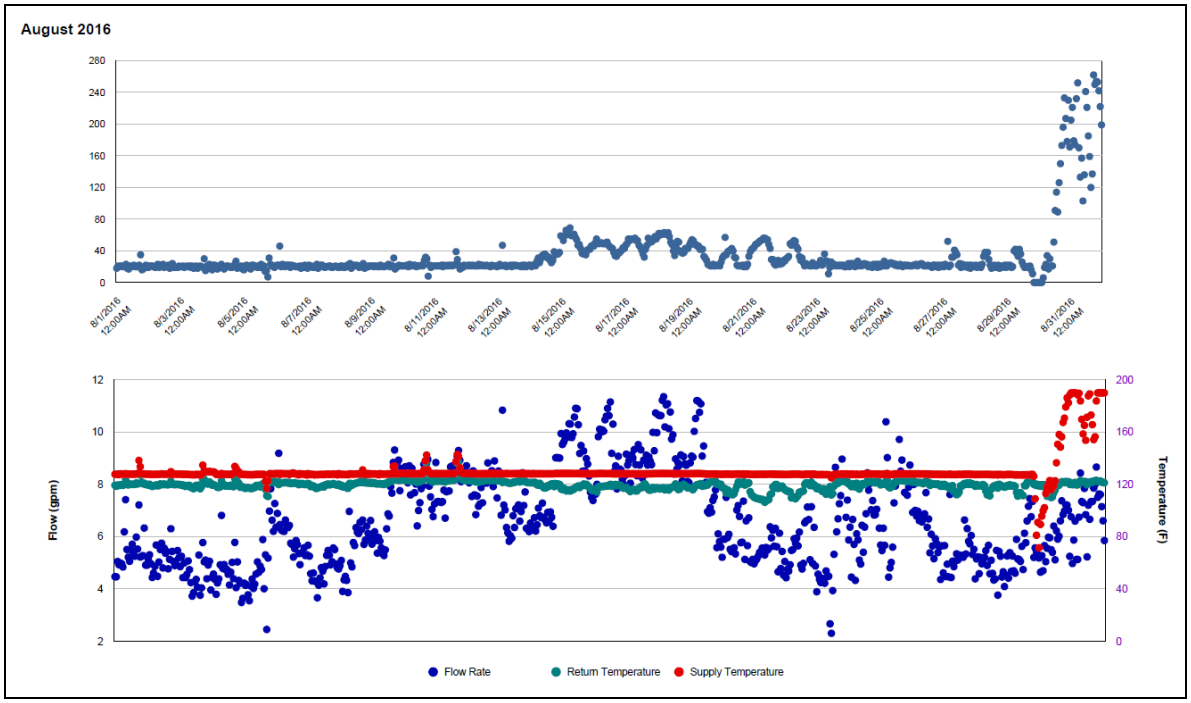
Quantitative descriptions and comments

Starting 8/29/2016, HHW supply temp of this building appears to be faulty, containing constant high values and drifts between 60 to 190°F. This period is estimated by a model.

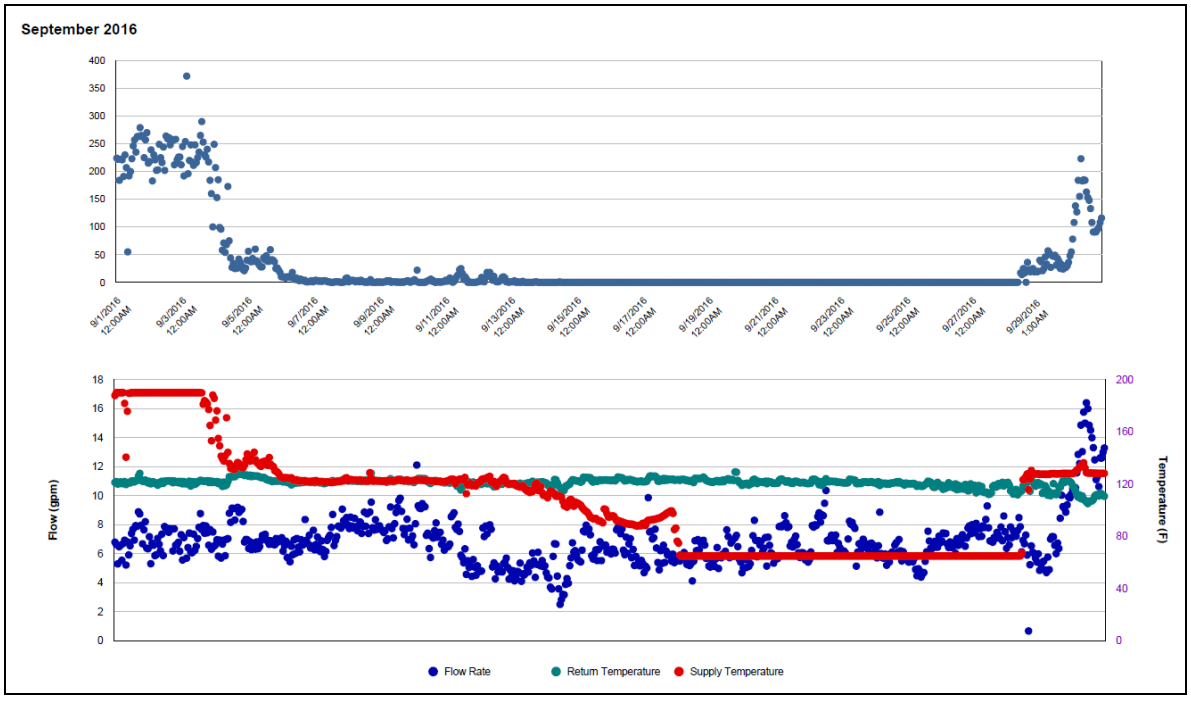
Explanatory Figure: 13 months energy balance plot with original data



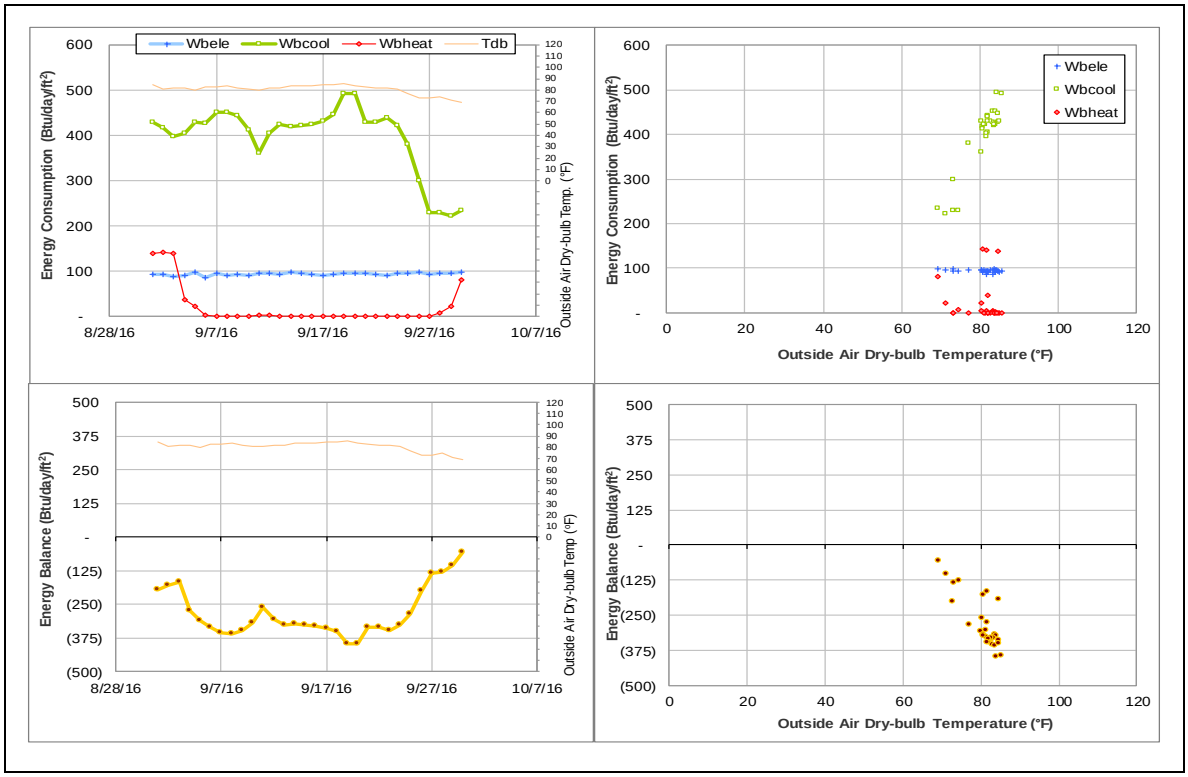
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



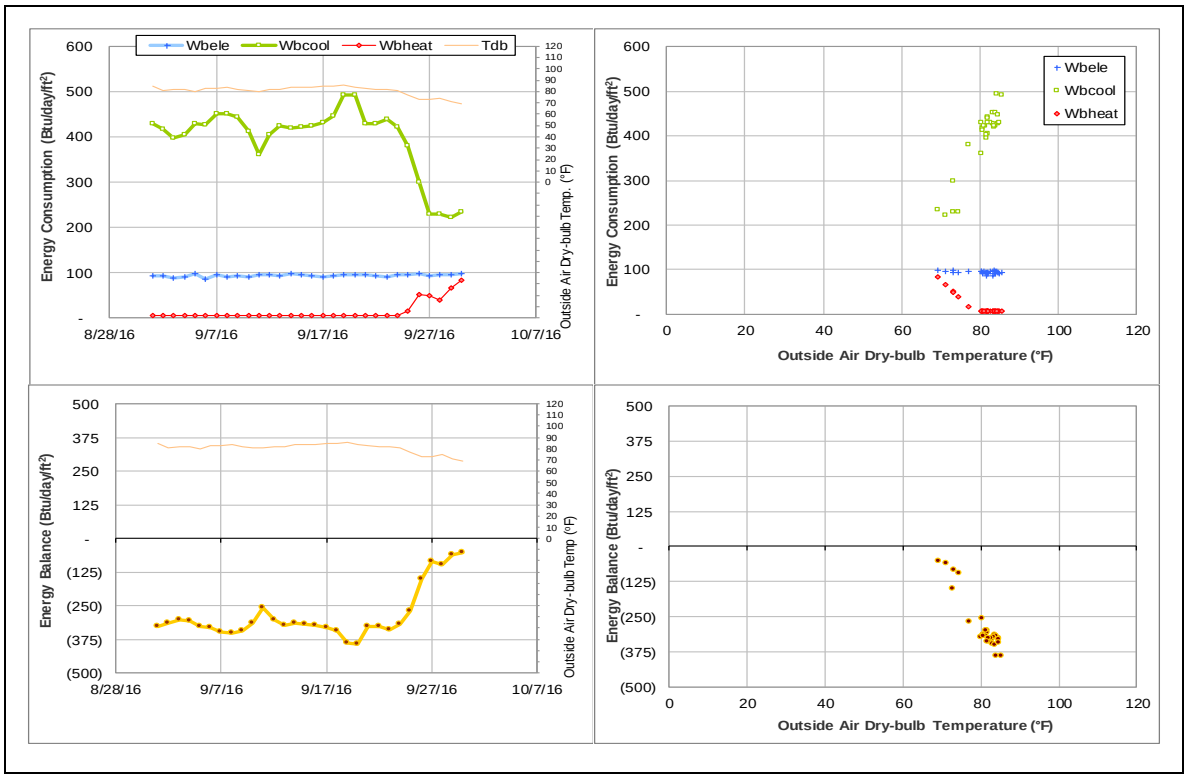
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Krueger Residence Hall (TAMU Bldg #441)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002504	5	9/26/2016 – 9/30/2016	Model
HHW	002500	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	8/1/2016 – 8/26/2016
	The consumption level is lower than the level during the past year.	9/26/2016 – Ongoing
HHW	The metered values appear to be faulty.	8/1/2016 – Ongoing

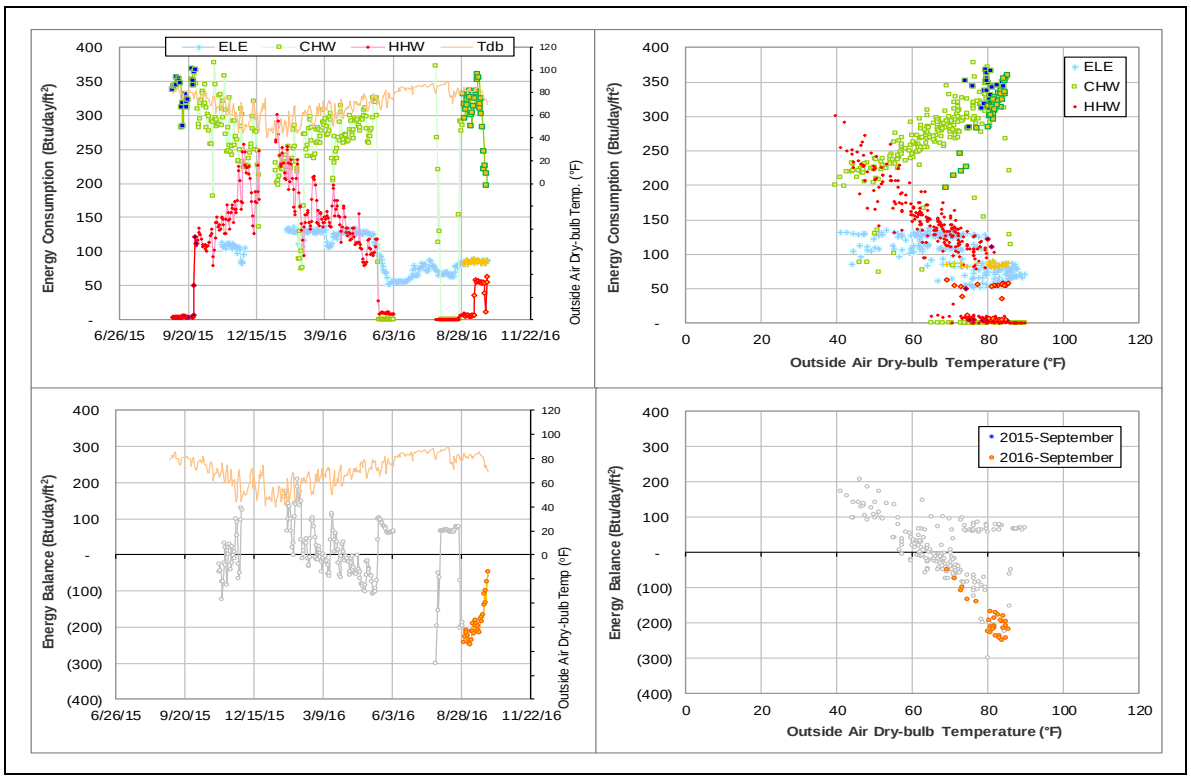
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002504	8/1/2016 – 8/26/2016	Flow rate, Return temperature	Constant
		9/26/2016 – 9/30/2016	Flow Rate	Low
HHW	002500	8/1/2016 – 8/26/2016	Flow rate, Return temperature, Supply temperature	Constant
		8/27/2016 – 9/30/2016	Flow Rate	Occasionally constant

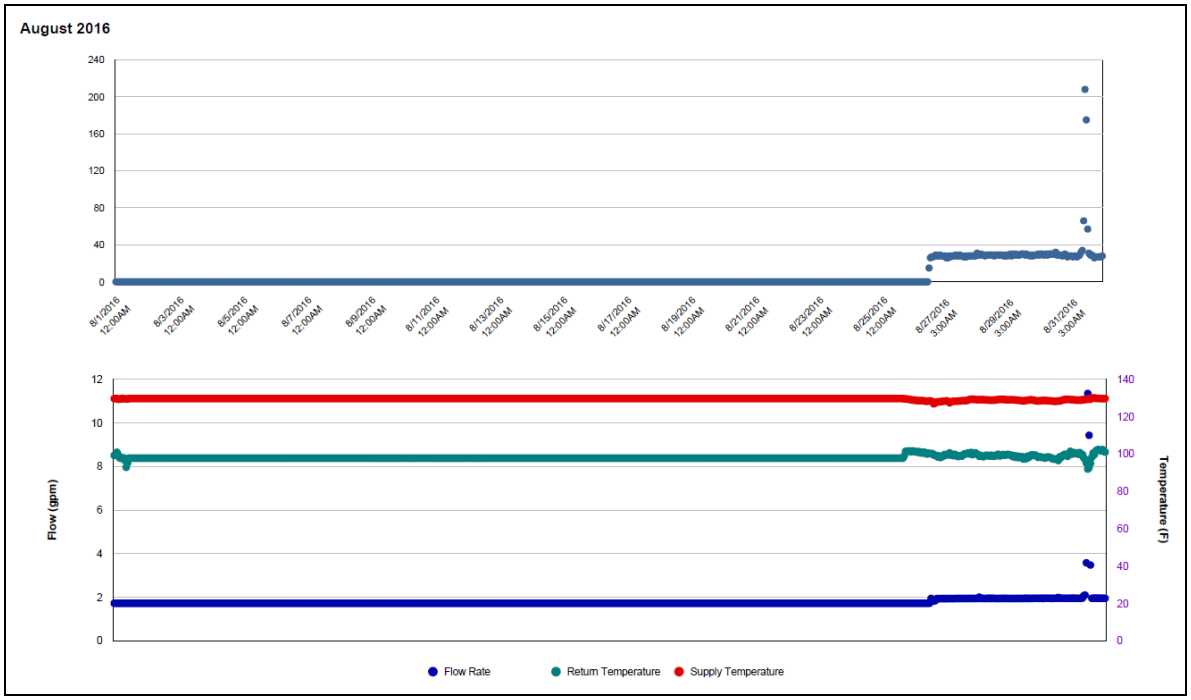
Quantitative descriptions and comments

Constant readings are observed in flow rate, return temp for CHW, and in flow rate, return temp, supply temp for HHW during 8/1 – 8/26/2016. After this period, CHW is back to normal level, but HHW is at near zero level. Both meters seem to have been reset on 8/26/2016 according to hourly reading values. After the faulty period, both CHW and HHW seem to be forming a new pattern lower than the previous one, but more data are required to validate this observation. CHW started to fall out of the main pattern after 9/26/2016 and this short period is estimated by a model. HHW flow rate readings still contain constant periods, therefore the whole month is estimated by a temporary model because the readings are questionable.

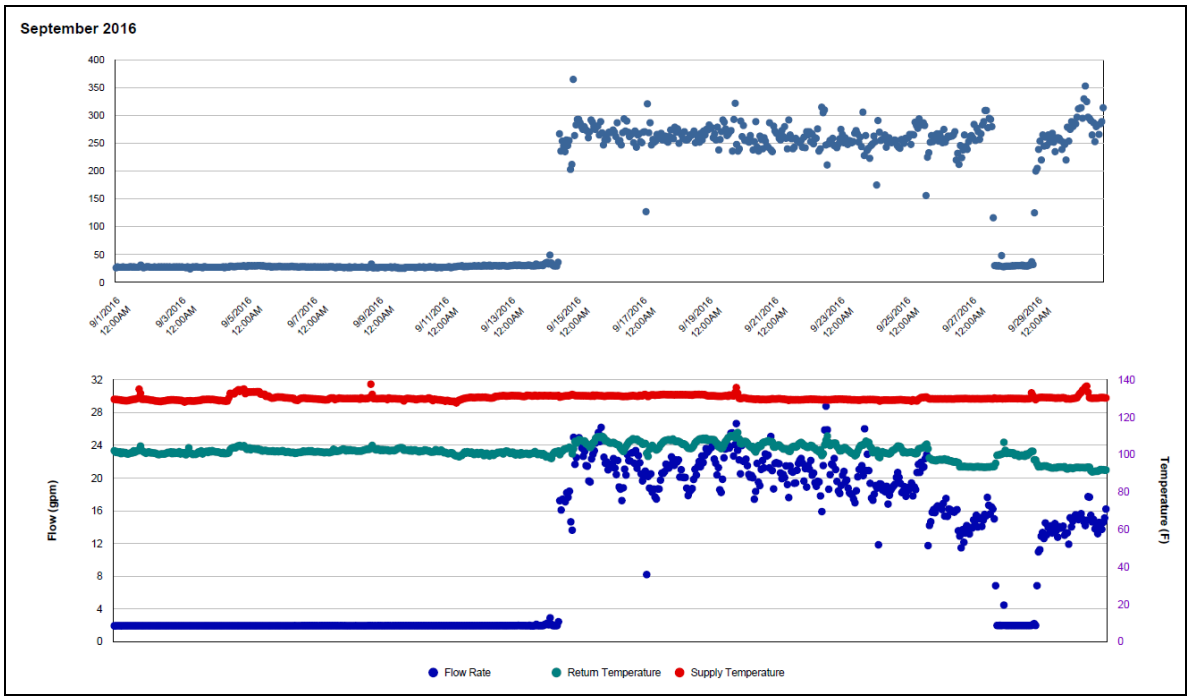
Explanatory Figure: 13 months energy balance plot with original data.



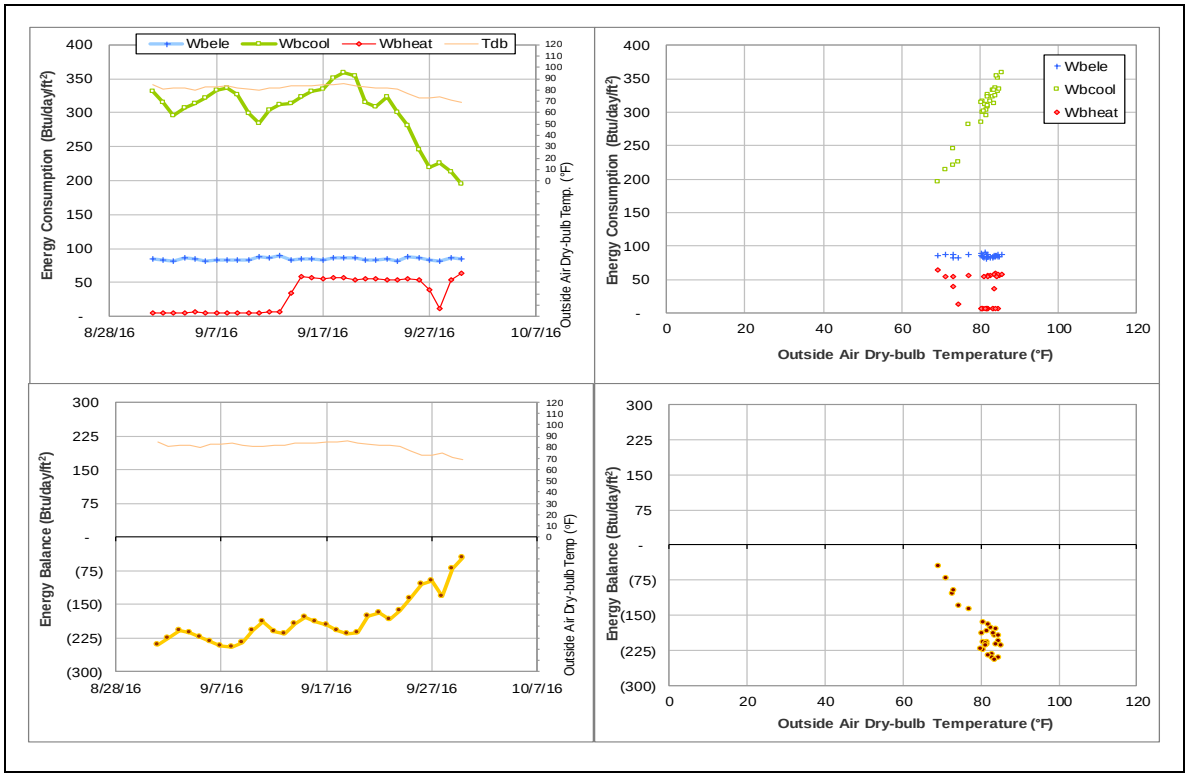
Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



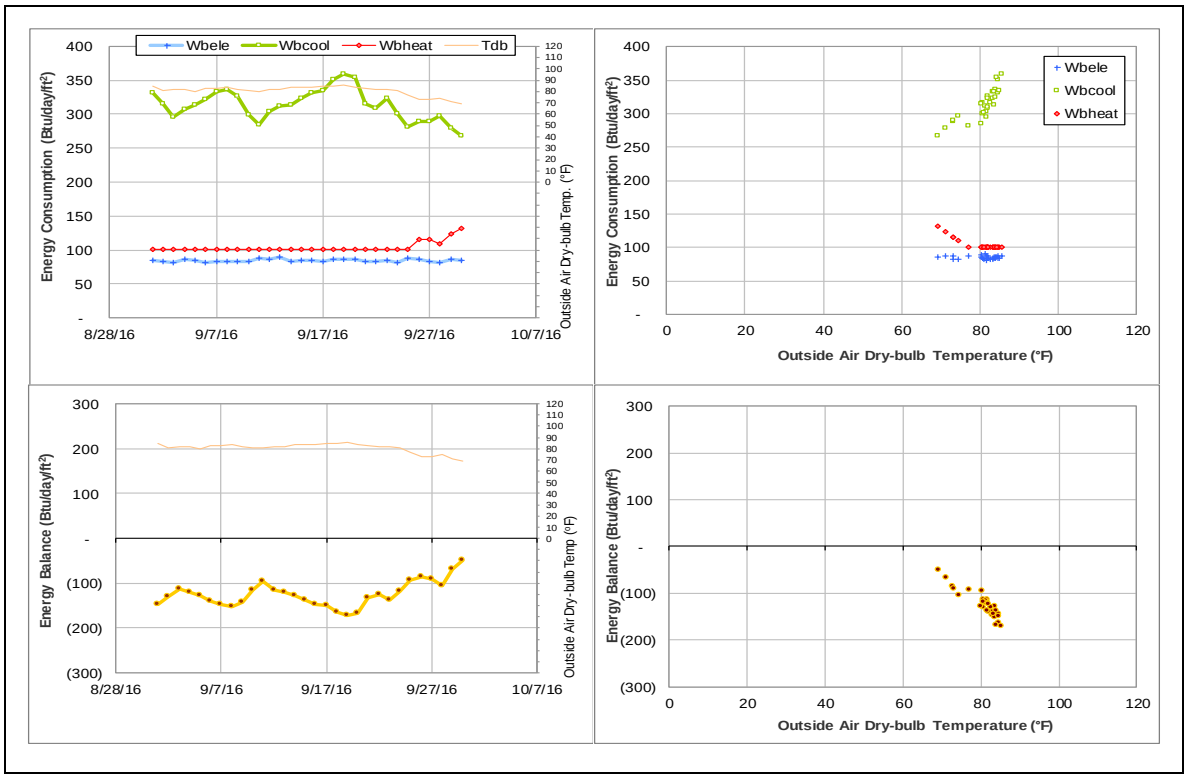
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Dunn Residence Hall (TAMU Bldg #442)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002515	15	9/14/2016 – 9/28/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The metered values appear to be faulty.	9/14/2016 – 9/28/2016

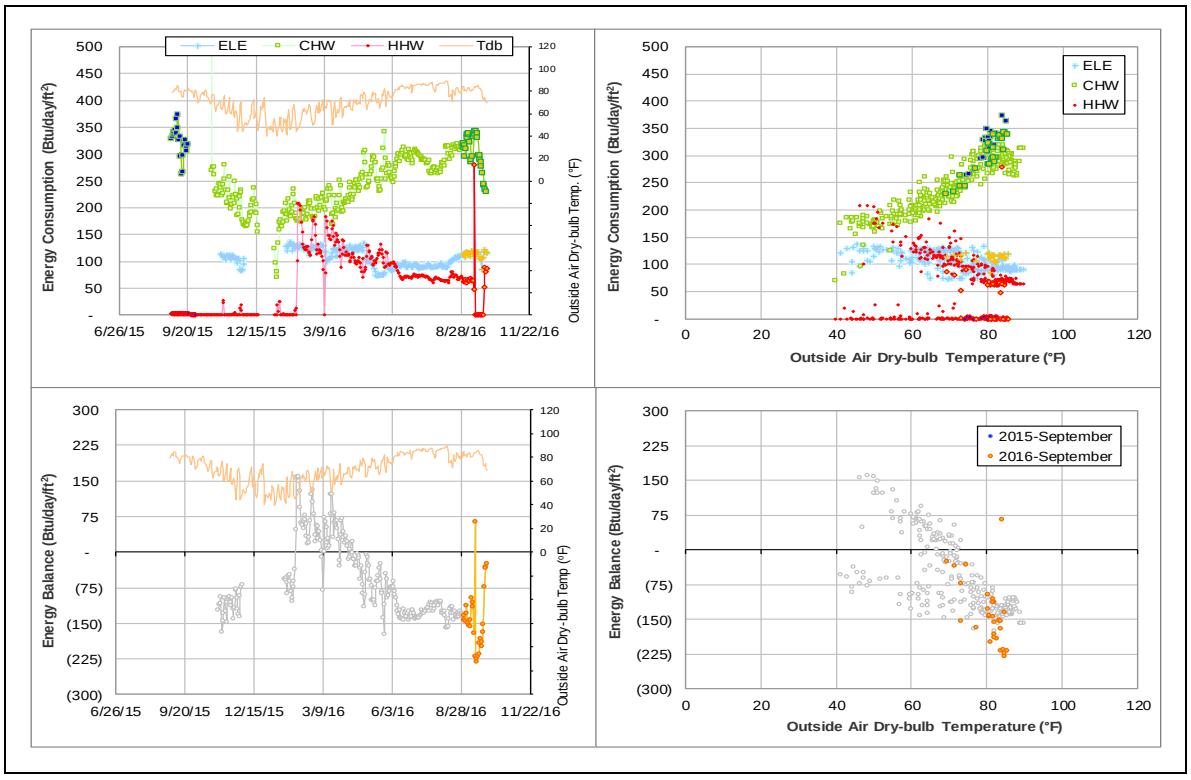
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002515	9/14/2016 – 9/28/2016	Supply Temp	Faulty
			Flow Rate	Low or zero

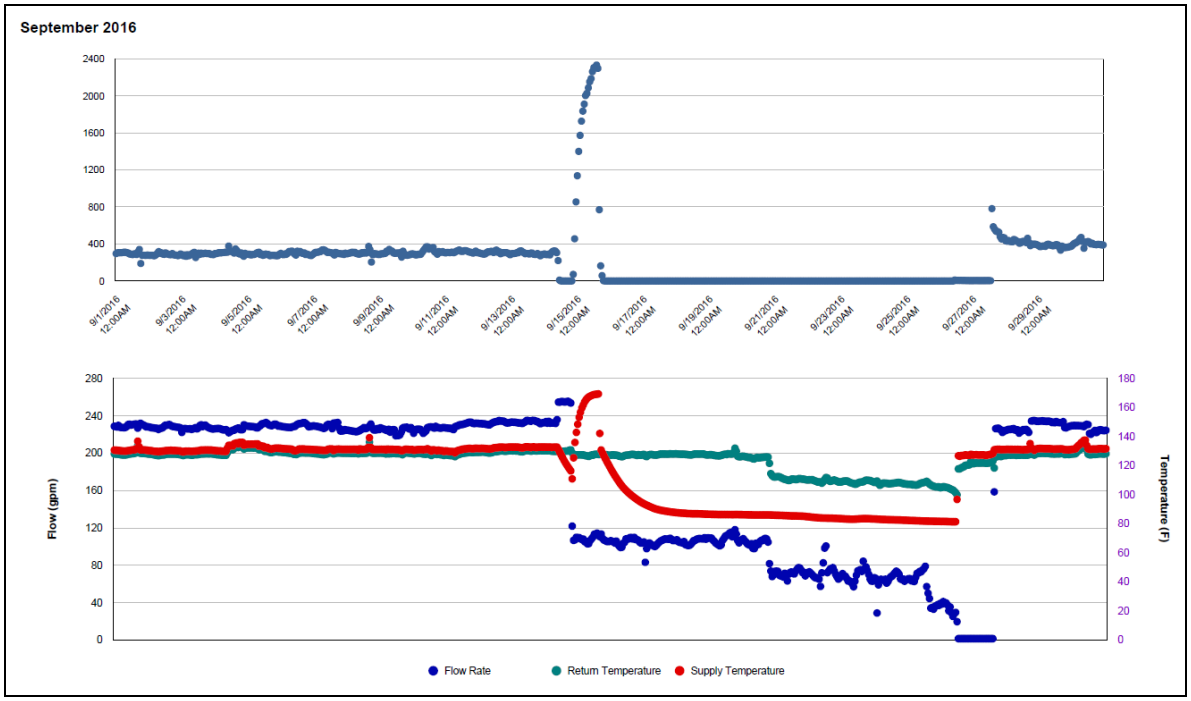
Quantitative descriptions and comments

HHW supply temperature seemed to be faulty during 9/14 – 9/28/2016. It varied largely in the range of 110°F -170°F for 9/15-9/16/2016 and then decreased and was lower than return temperature which causing negative delta-T. HHW flow dropped in steps from 230 gpm to 20 gpm since 9/15/2016 and reached zero on 9/27/2016. The supply temperature and flow rate increased back to previous level on 9/28/2016. Metering issue seemed to be fixed. The faulty consumption is estimated using a model.

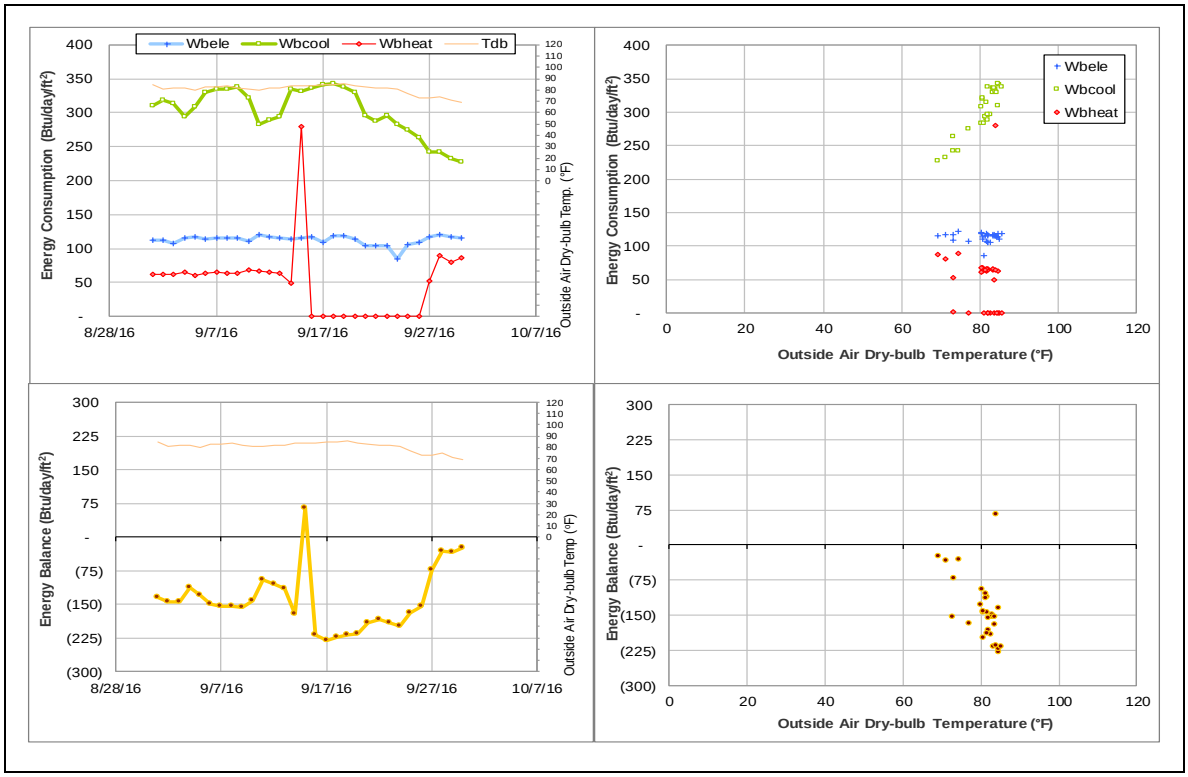
Explanatory Figure: 13 months energy balance plot with original data.(Plot rescaled to remove the spikes.)



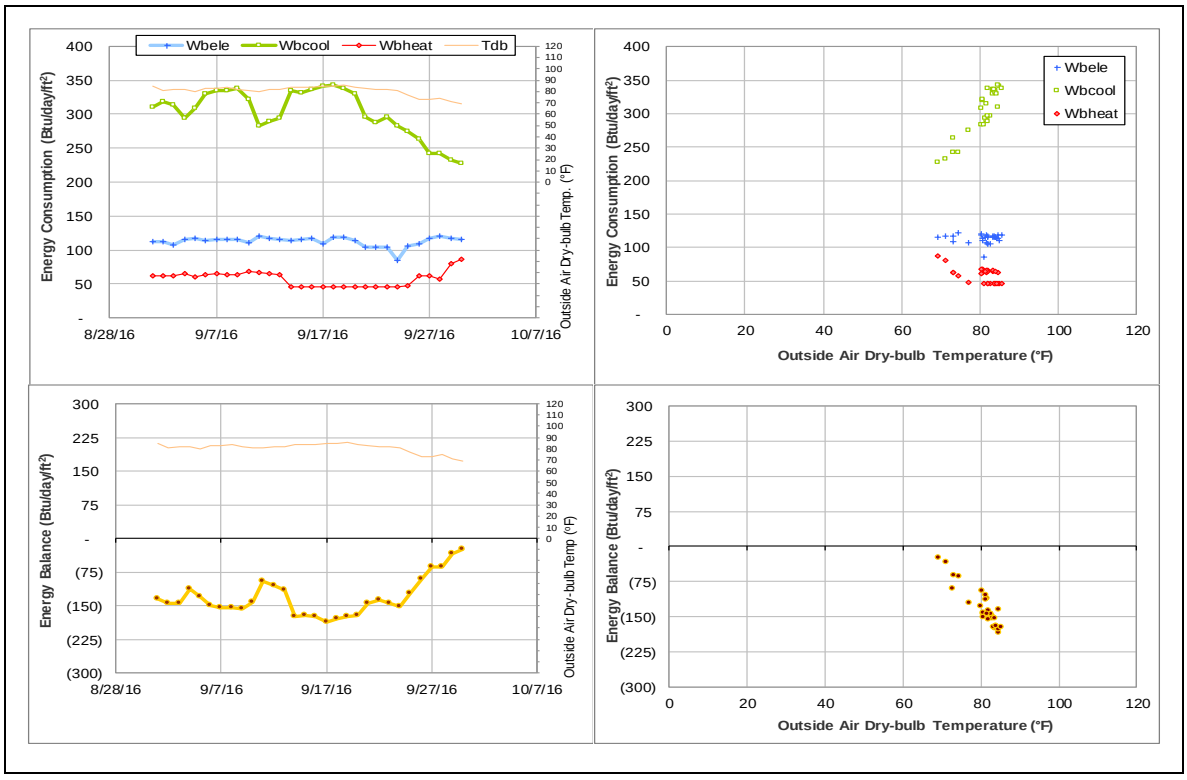
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Aston Residence Hall (TAMU Bldg #447)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002474	30	9/1/2016 – 9/30/2016	Model
HHW	002470	15	9/14/2016 – 9/28/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level is lower than the level during the past year.	8/14/2016 – Ongoing
HHW	The consumption dropped for a short period. The metered values appear to be faulty.	9/14/2016 – 9/28/2016

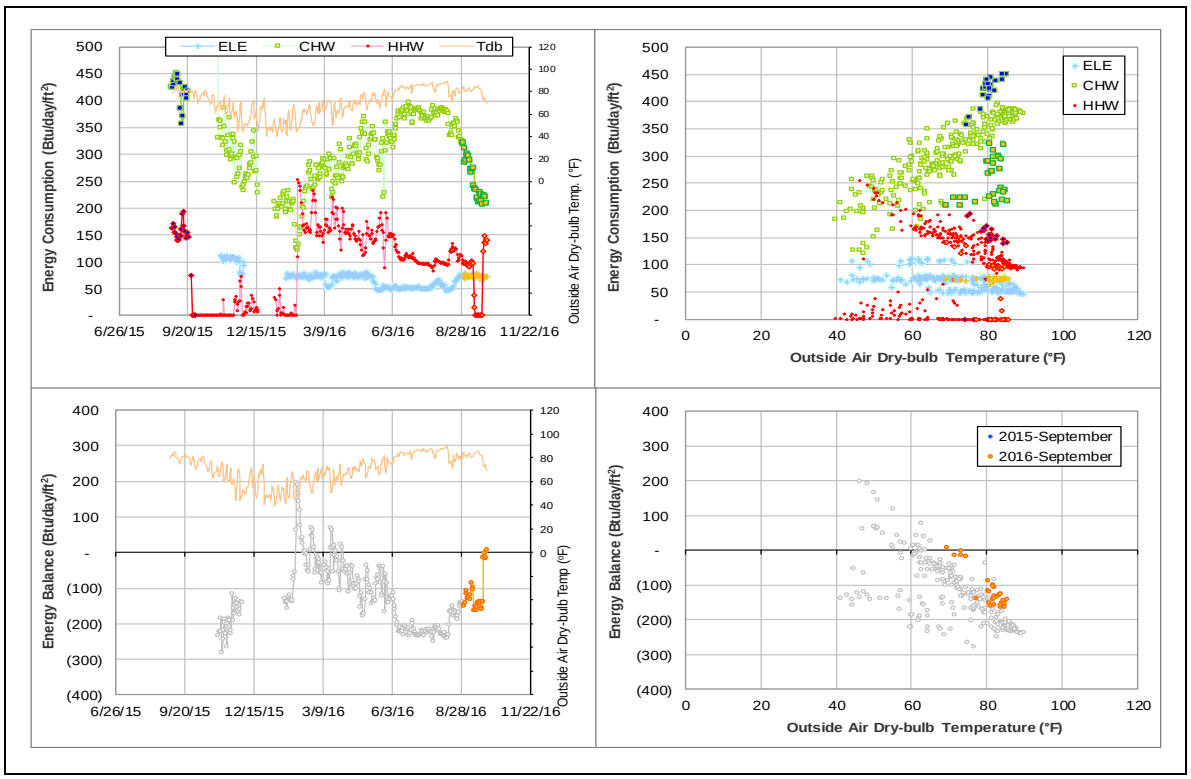
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002474	8/14/2016 – Ongoing	Flow Rate	Decreased
			Delta-T	Decreased
HHW	002470	9/14/2016 – 9/28/2016	Flow Rate	Occasionally constant

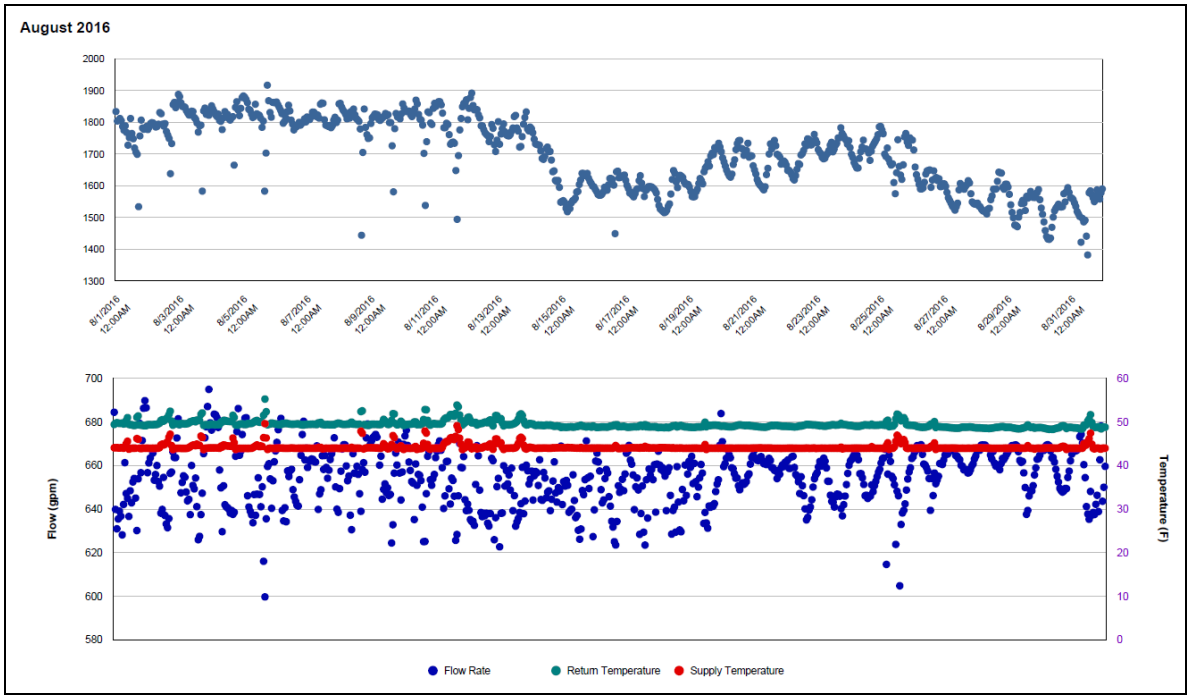
Quantitative descriptions and comments

CHW consumption of this building dropped to a level that is significantly lower than last year and fell out of the main trend. This is due to a gradual decrease of both the flow rate and Delta-T. The whole month of CHW consumption is estimated by a model. HHW had a period of zero flow rates during 8/14 – 8/28/2016. This period is estimated by a model.

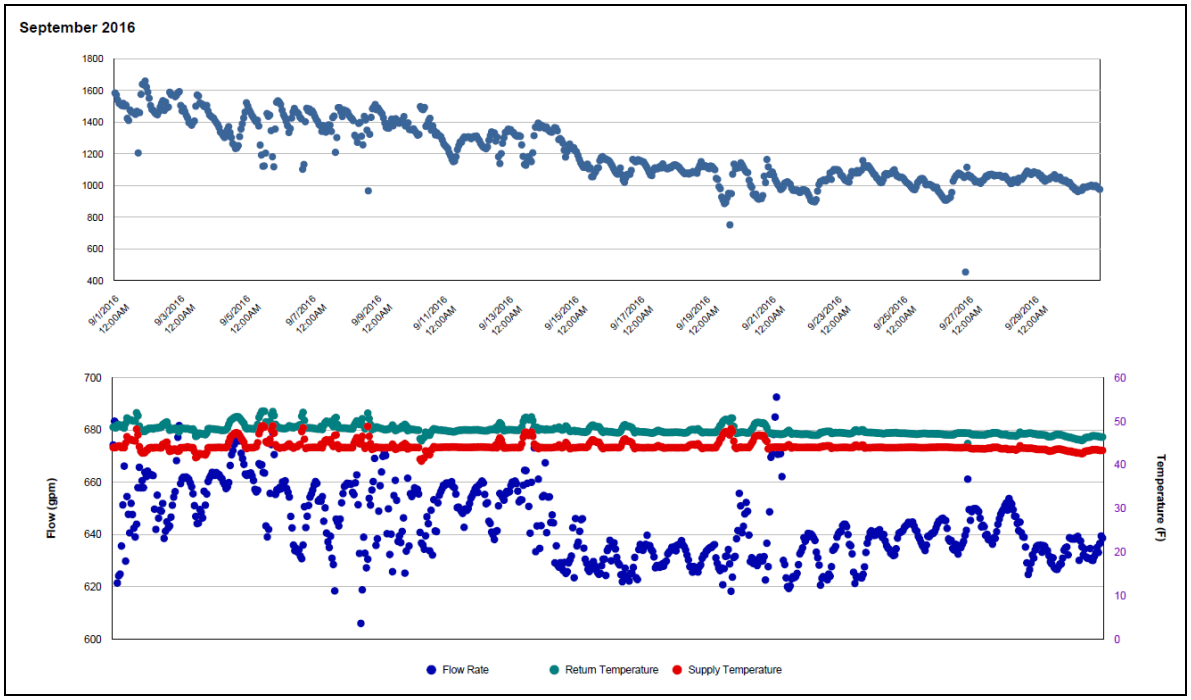
Explanatory Figure: 13 months energy balance plot with original data.



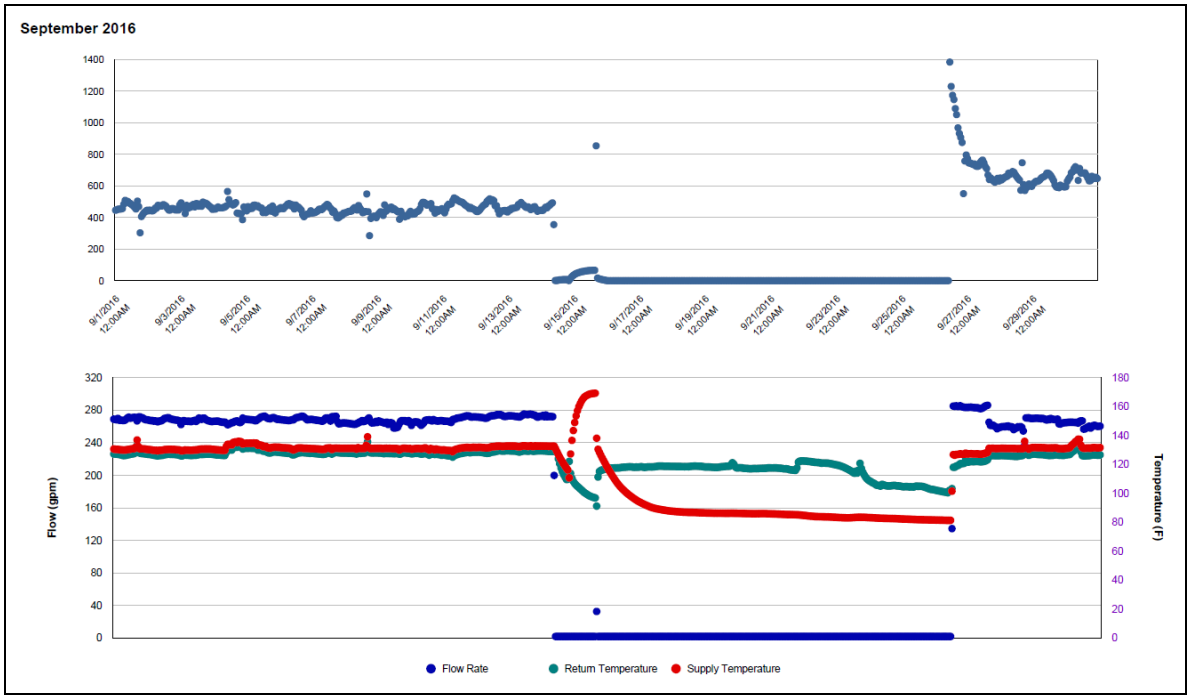
Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during August 2016)



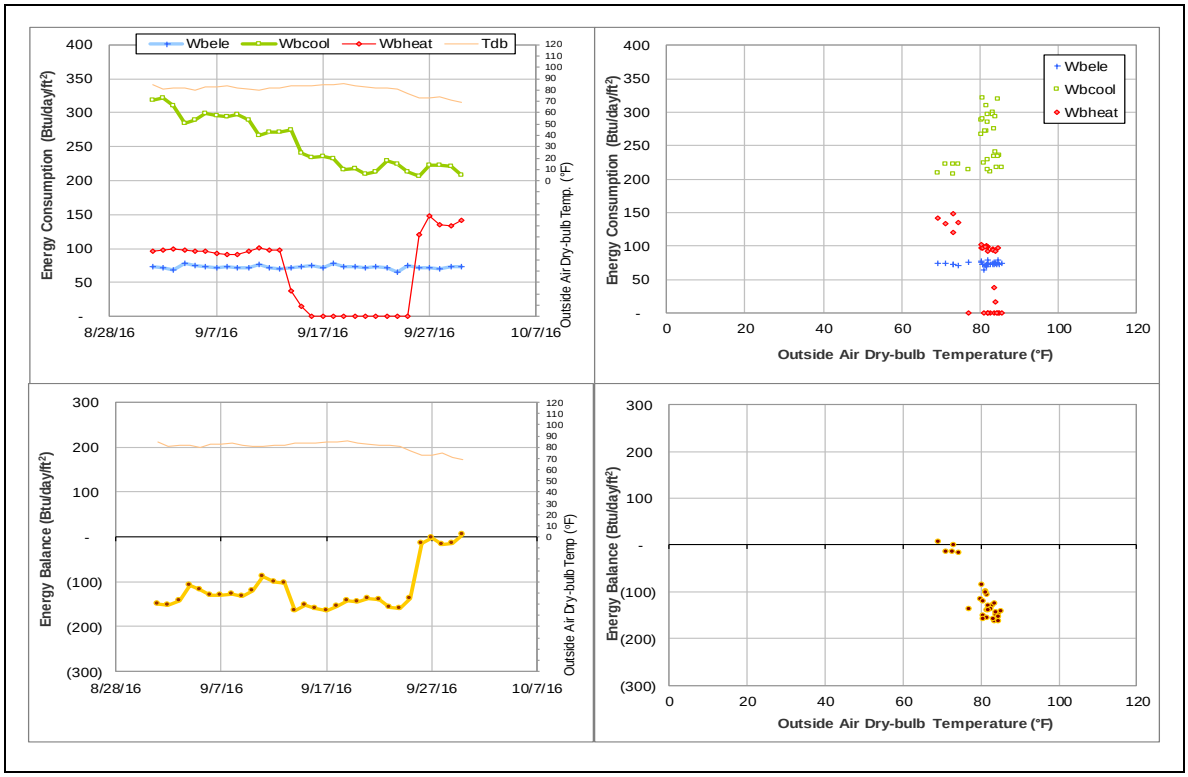
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



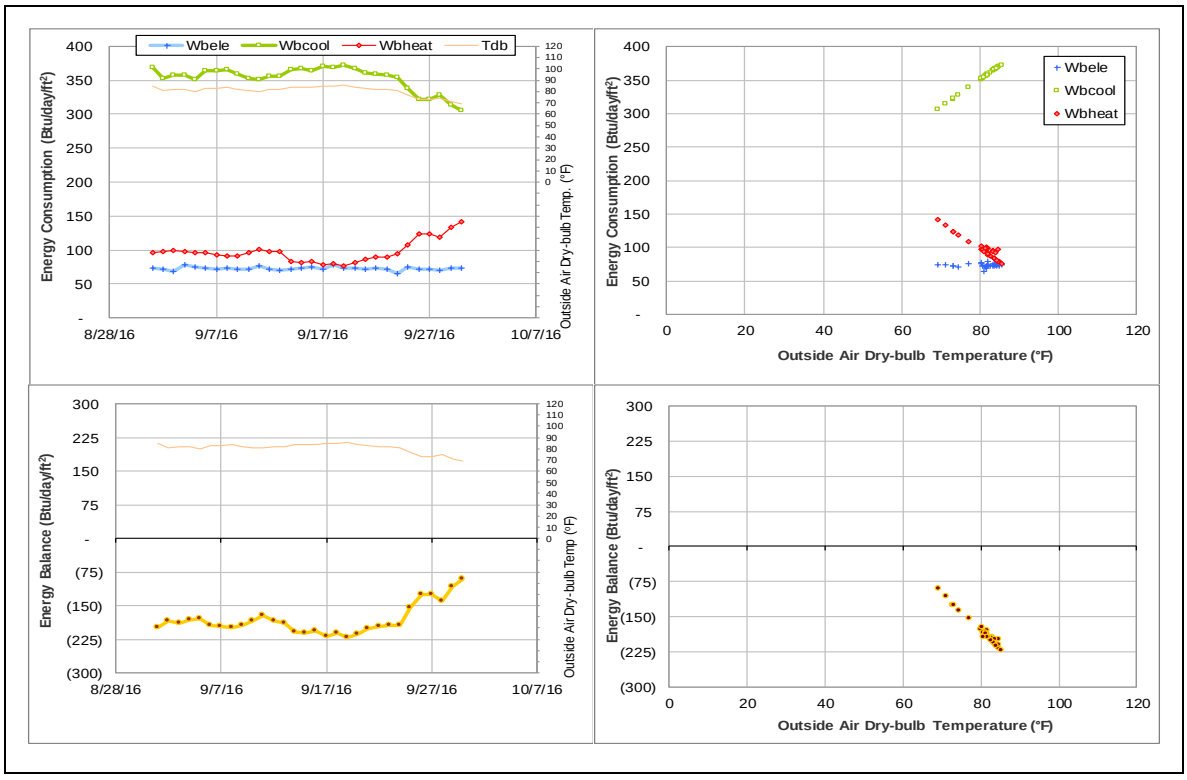
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Peterson Building (TAMU Bldg #444)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006435	9	9/22/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The metered values appear to be faulty.	9/22/2016 – Ongoing

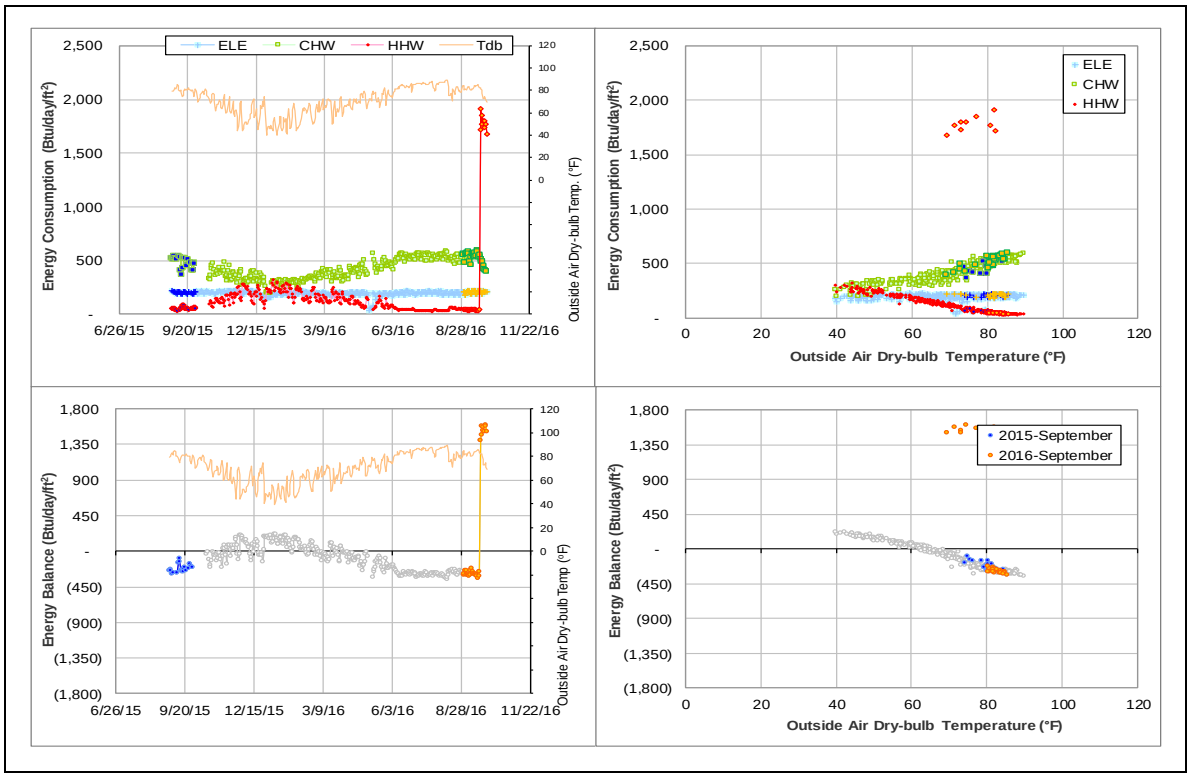
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006435	9/22/2016 – 9/30/2016	Flow Rate	Constant and very high

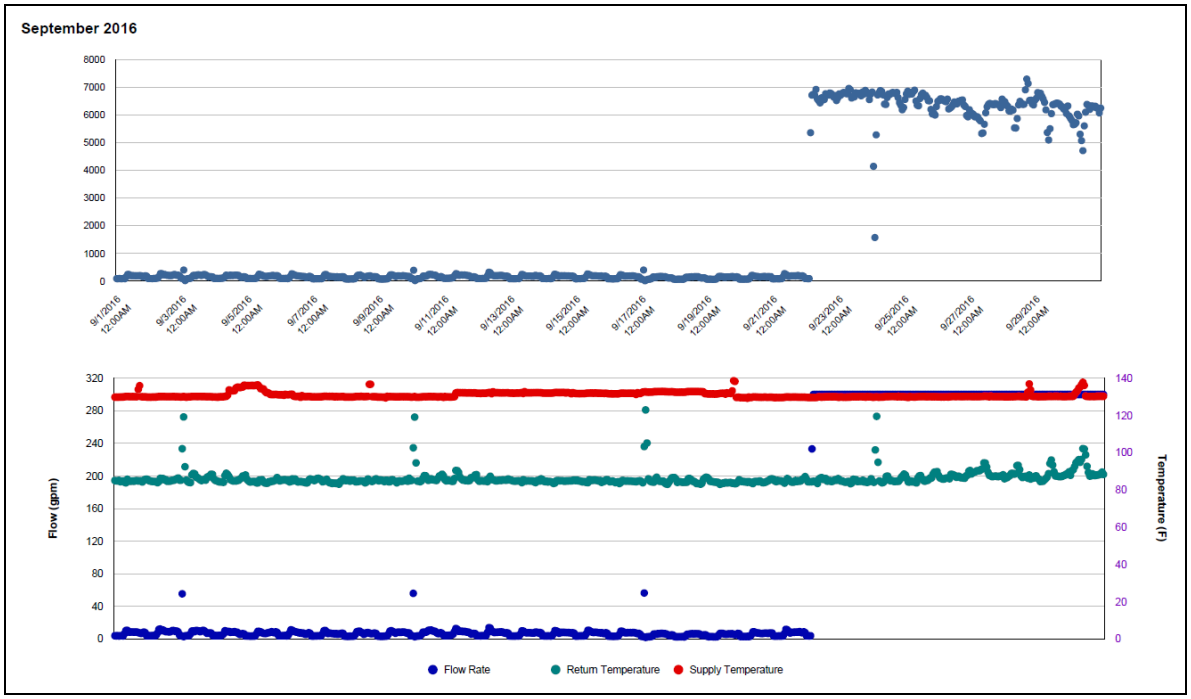
Quantitative descriptions and comments

HHW flow rate readings are constant starting 9/22/2016. The consumption is estimated by a model.

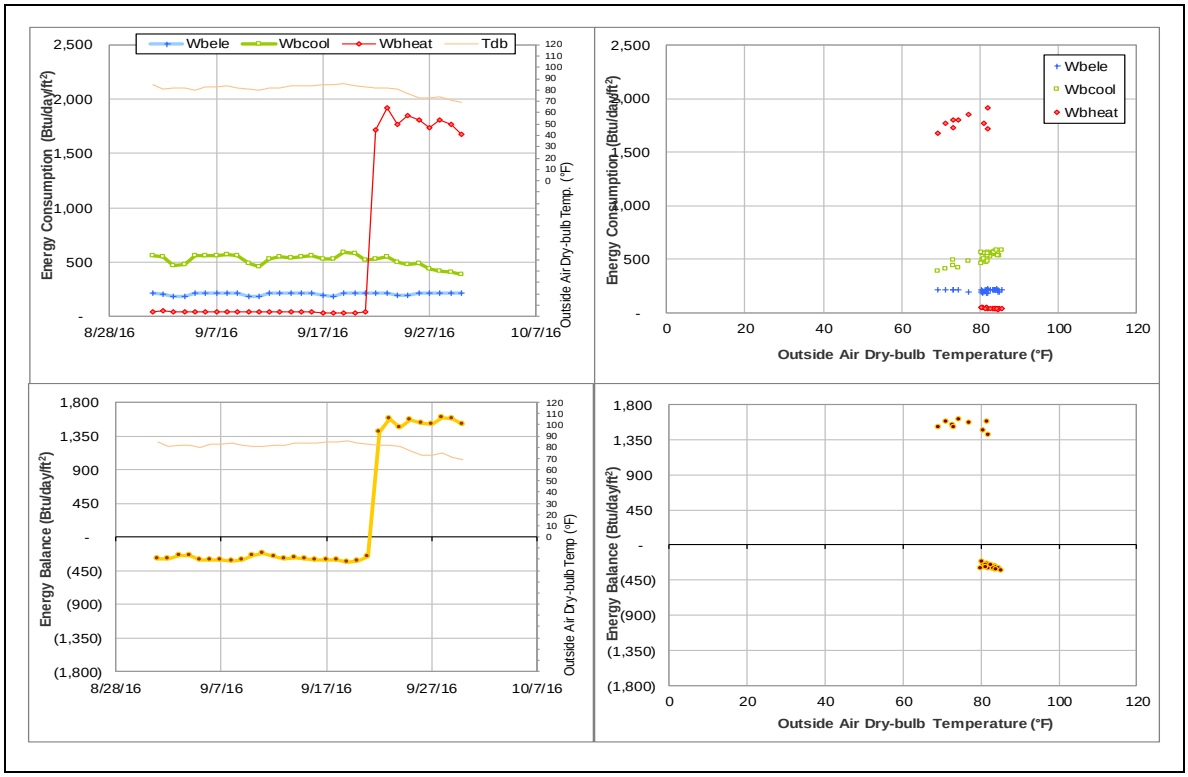
Explanatory Figure: 13 months energy balance plot with original data.



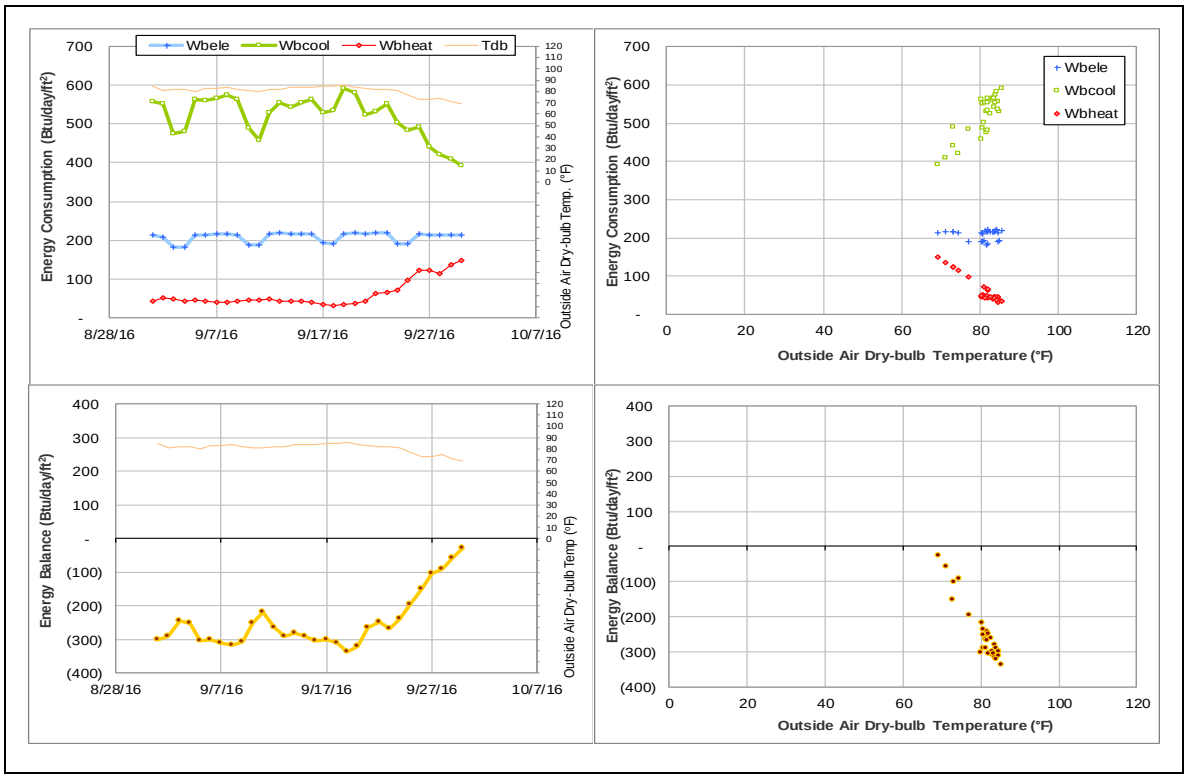
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



DPC Annex (TAMU BLDG # 517)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006567	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level is higher than the level during the past year.	8/14/2016 – 8/30/2016
	The consumption level is lower than the level during the past year.	8/31/2016 – 9/30/2016

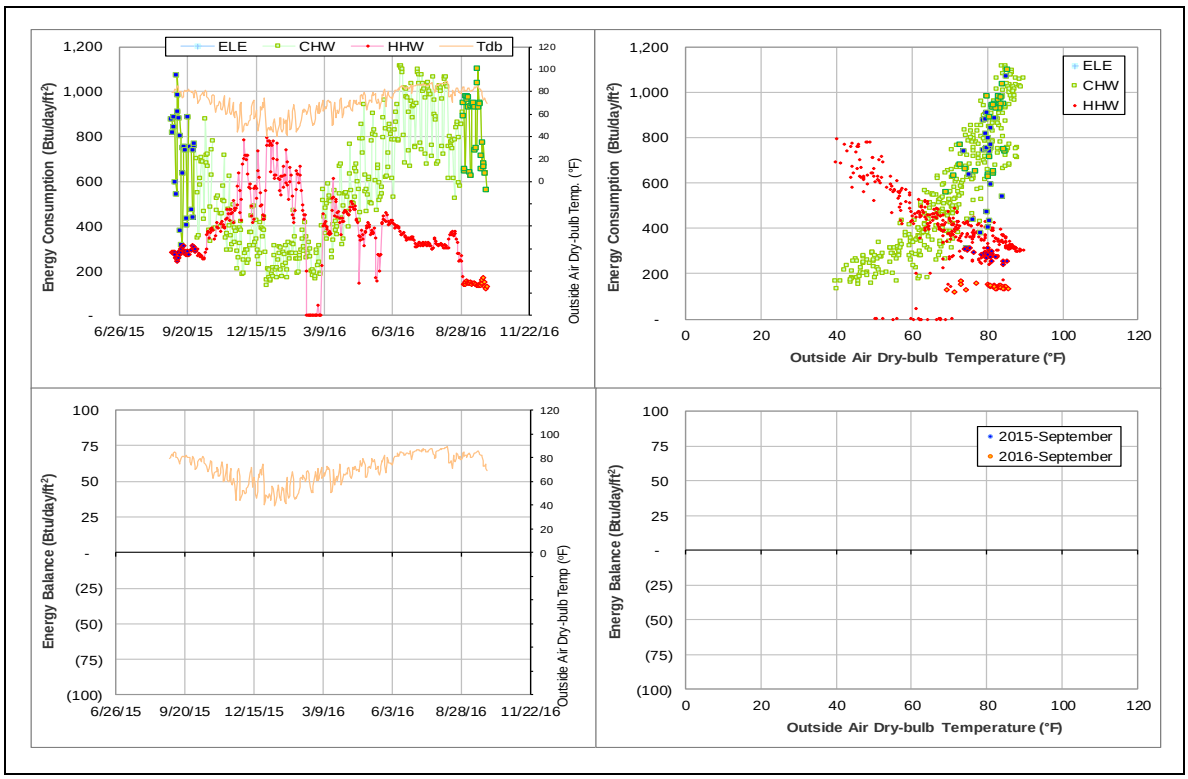
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006567	8/14/2016 – 8/30/2016	Flow Rate	Increased
		8/31/2016 – 9/30/2016	Flow Rate	Decreased
			Return Temp	Increased

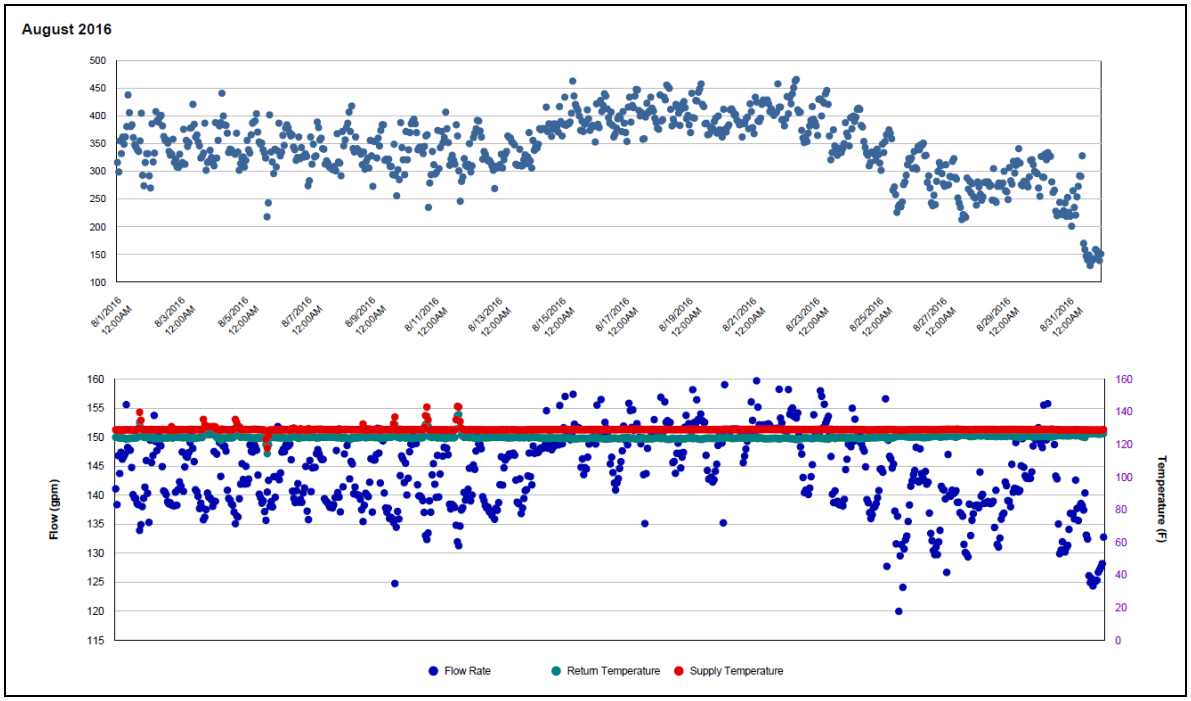
Quantitative descriptions and comments

HHW consumption of this building has been fluctuating since 8/14/2016. The consumption first increased from 300 Btu/day-sf level by 40 Btu/day-sf and then started to drop in steps and leveled at 140 Btu/day-sf starting 8/31/2016. Accordingly, HHW flow dropped from 145 gpm in the previous level to 130 gpm overall, and Delta-T also decreased.

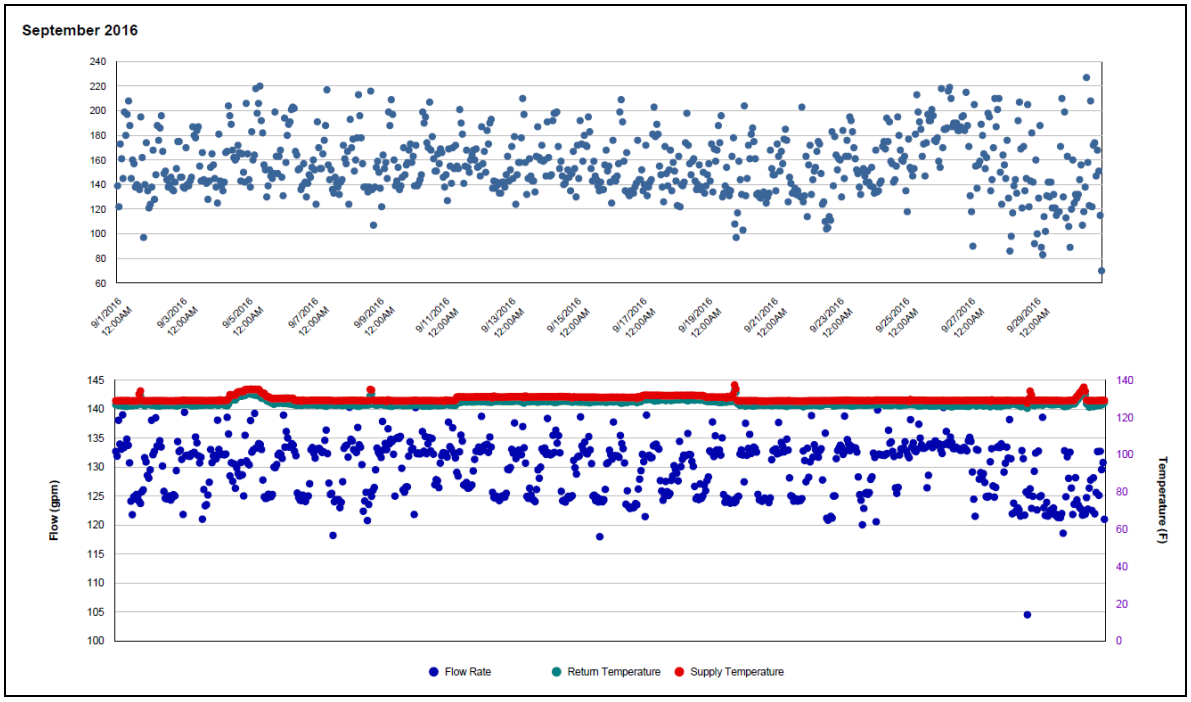
Explanatory Figure: 13 months energy balance plot with original data



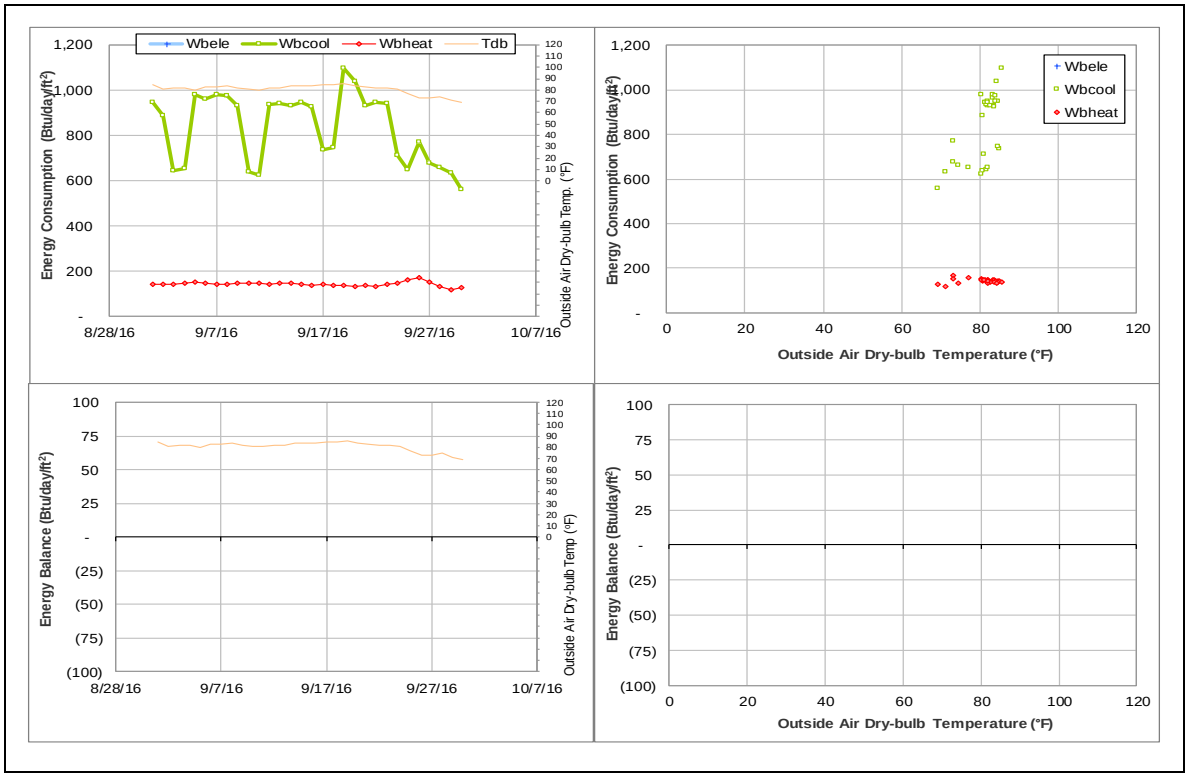
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



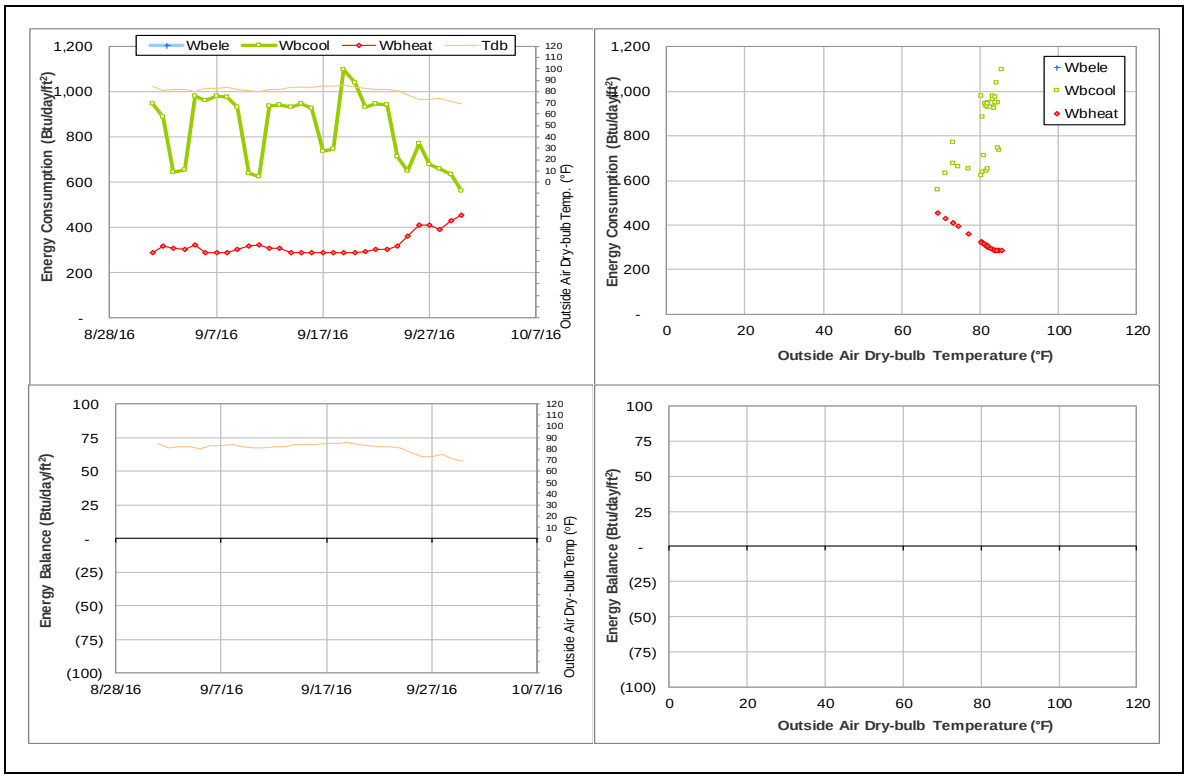
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



Adams Band Hall (TAMU Bldg #448)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	002555	2	9/28/2016 – 9/29/2016	Model
HHW	002566	2	9/28/2016 – 9/29/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption dropped for a short period.	8/3/2016 – 8/17/2016 9/28/2016 – 9/29/2016
HHW	The consumption dropped for a short period.	8/3/2016 – 8/17/2016 9/28/2016 – 9/29/2016

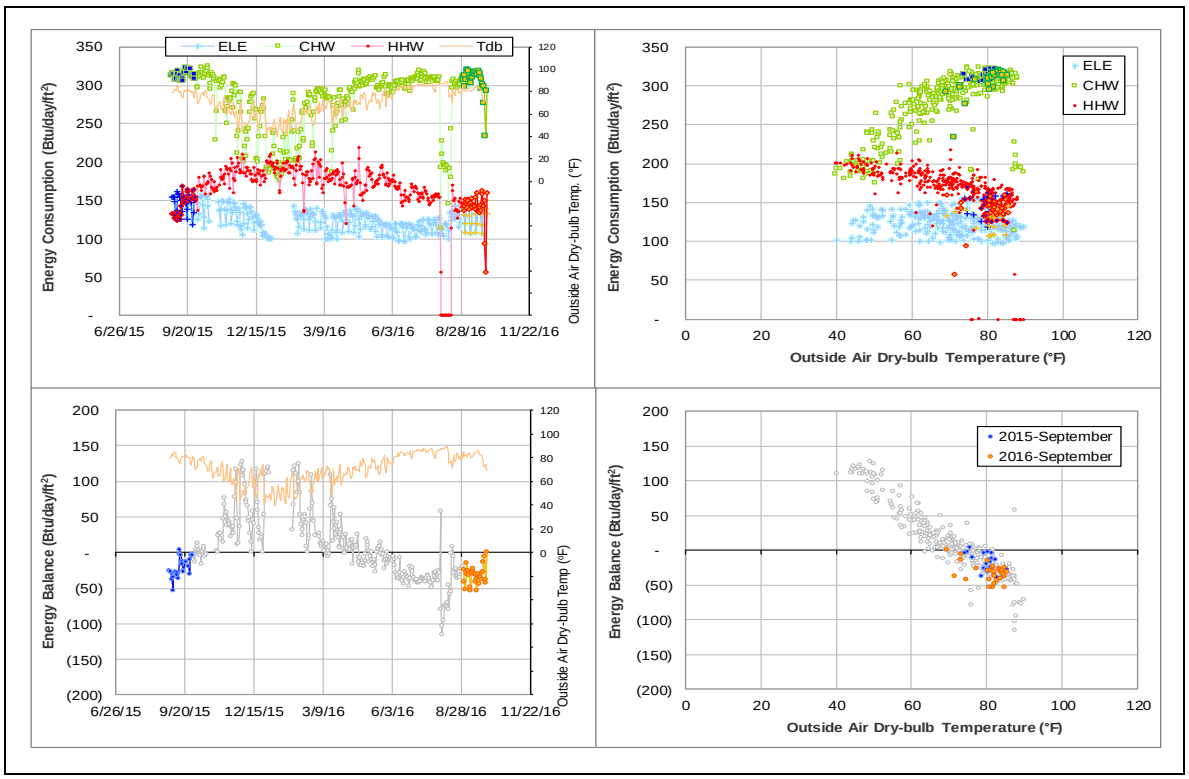
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	002555	8/3/2016 – 8/17/2016 9/28/2016 – 9/29/2016	Return Temperature	Decreased
HHW	002566	8/3/2016 – 8/17/2016 9/28/2016 – 9/29/2016	Flow rate	Zero

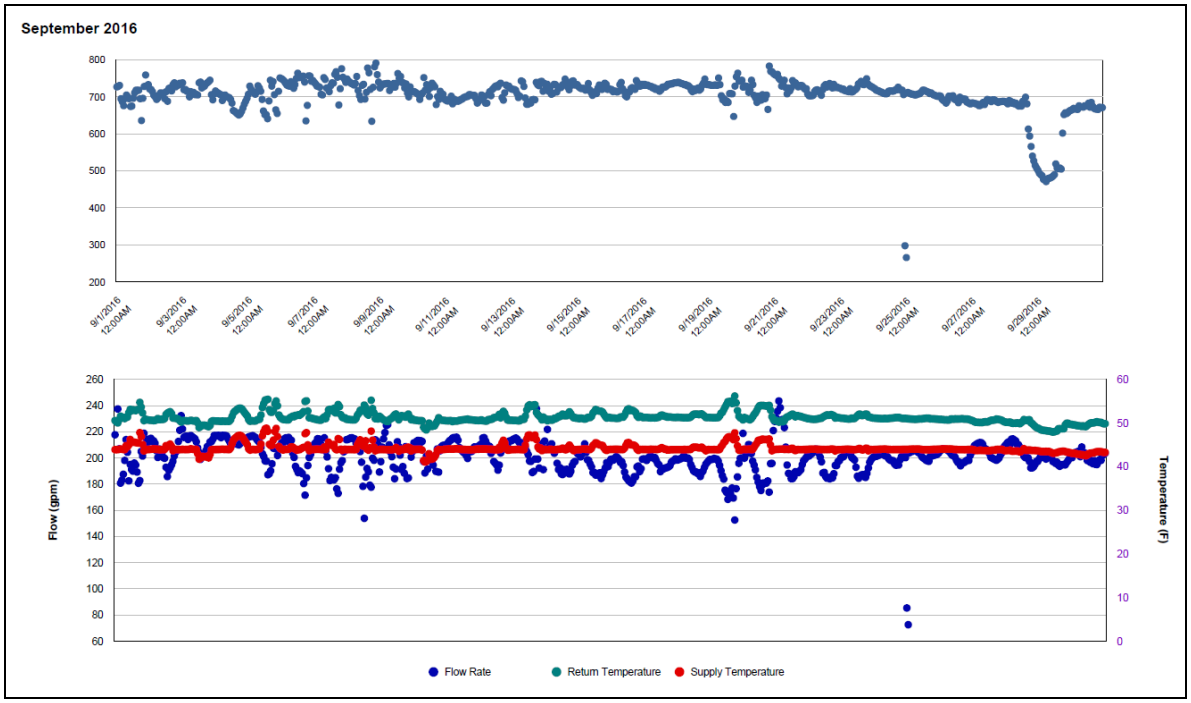
Quantitative descriptions and comments

Flow of HHW decreased to zero during 8/3 – 8/17/2016 and 9/28 – 9/29/2016. HHW temperatures and CHW return temperature responded accordingly, resulting in a simultaneous CHW consumption decrease of 100 Btu/day-sf. Some scatters are observed in EB plot. These days are estimated by models.

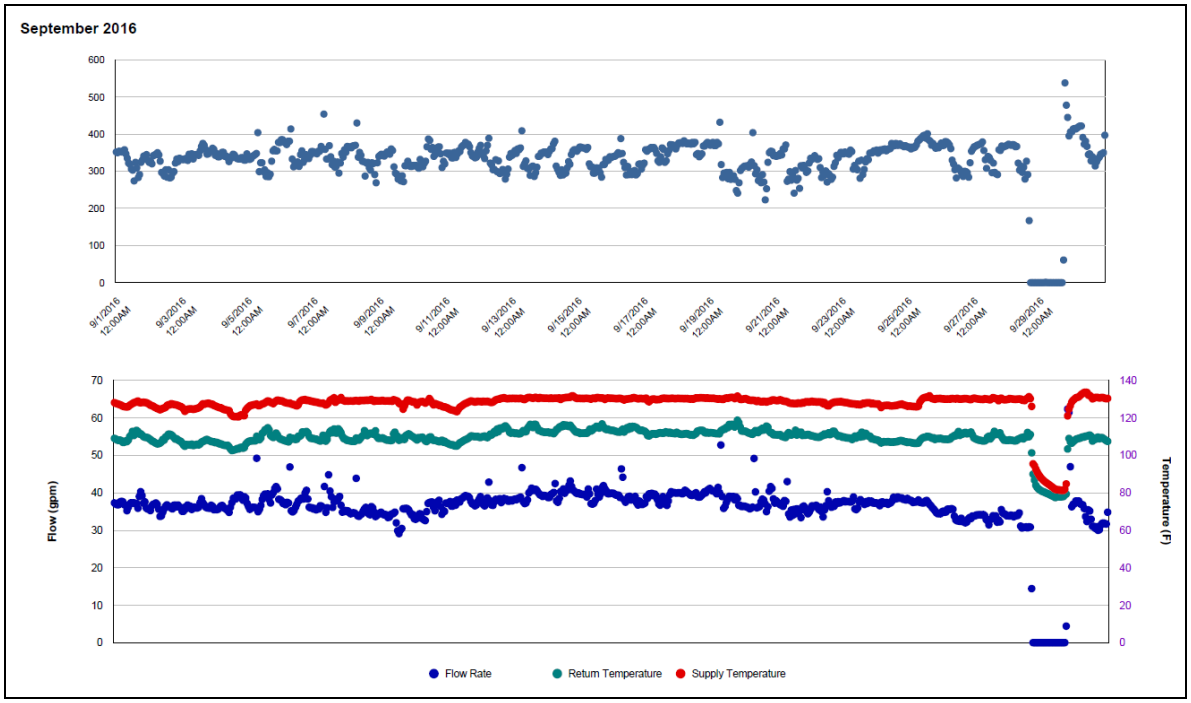
Explanatory Figure: 13 months energy balance plot with original data



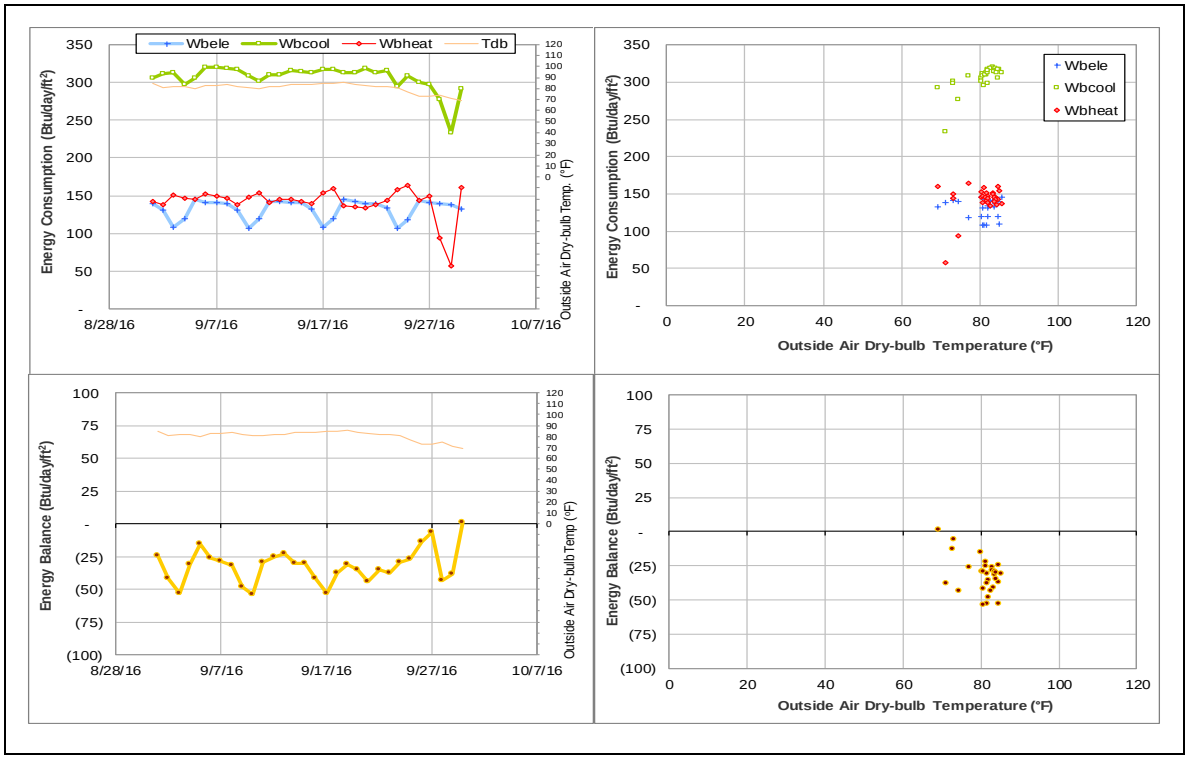
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



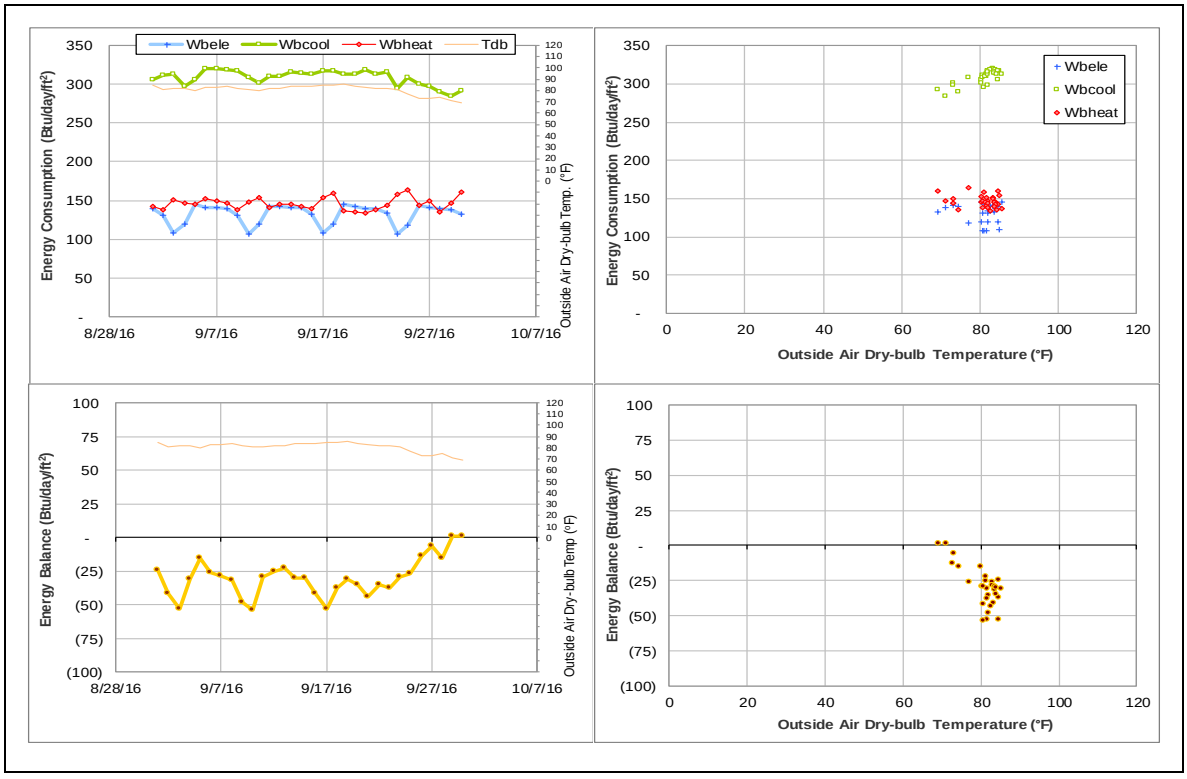
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis.



MSC (TAMU Bldg #454)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	007585	25	9/6/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The metered values appear to be faulty.	9/6/2016 – 9/30/2016

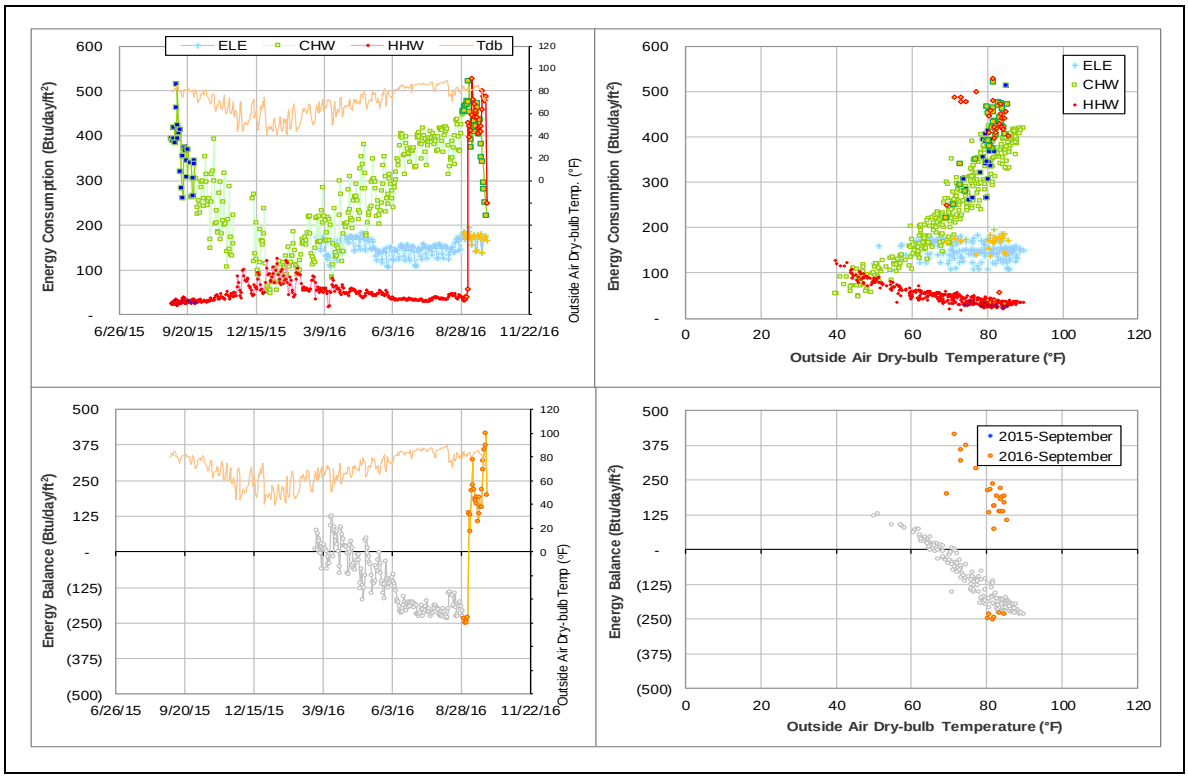
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	007585	9/6/2016 – 9/30/2016	Flow rate	Constant and very high

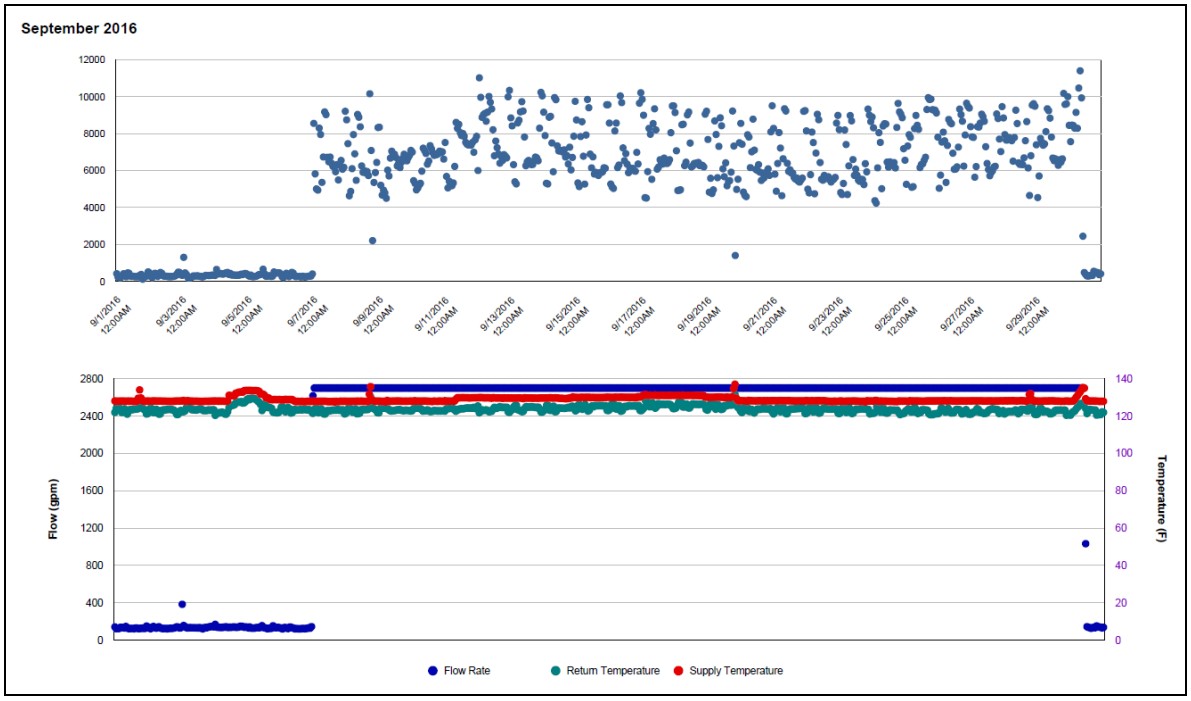
Quantitative descriptions and comments

The HHW flow rate readings started to be faulty (high and constant value) starting 9/6/2016 and seemed to be restored on 9/30/2016. This period is estimated by a model.

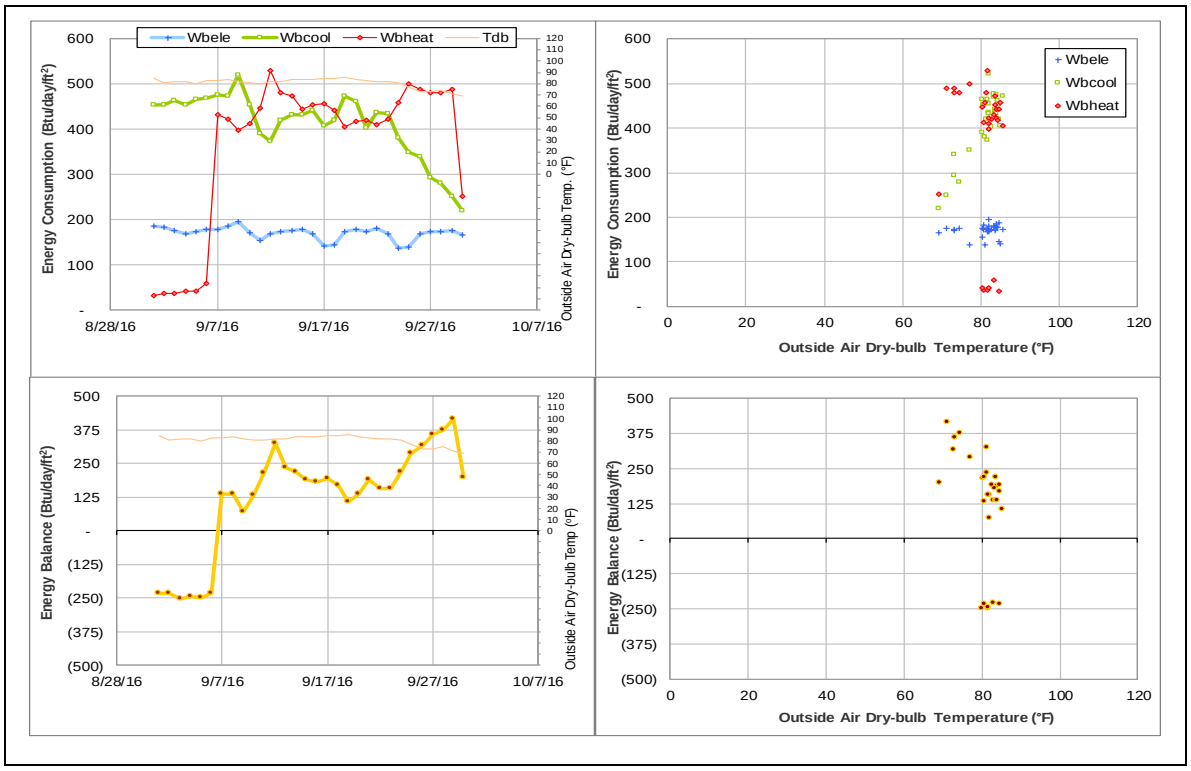
Explanatory Figure: 13 months energy balance plot with original data.



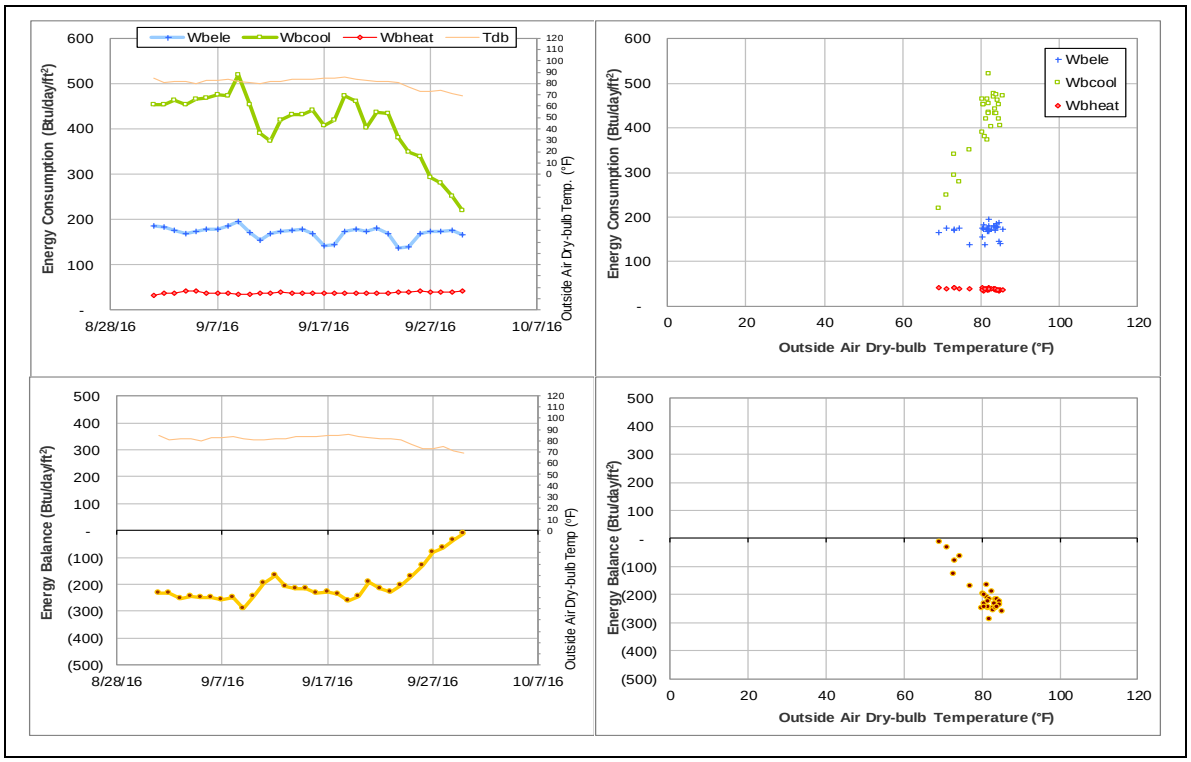
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Military Sciences Building (TAMU Bldg #456)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	006943	21	9/4/2016 – 9/24/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption dropped for a short period.	9/4/2016 – 9/15/2016
	The consumption increased for a short period.	9/15/2016 – 9/24/2016

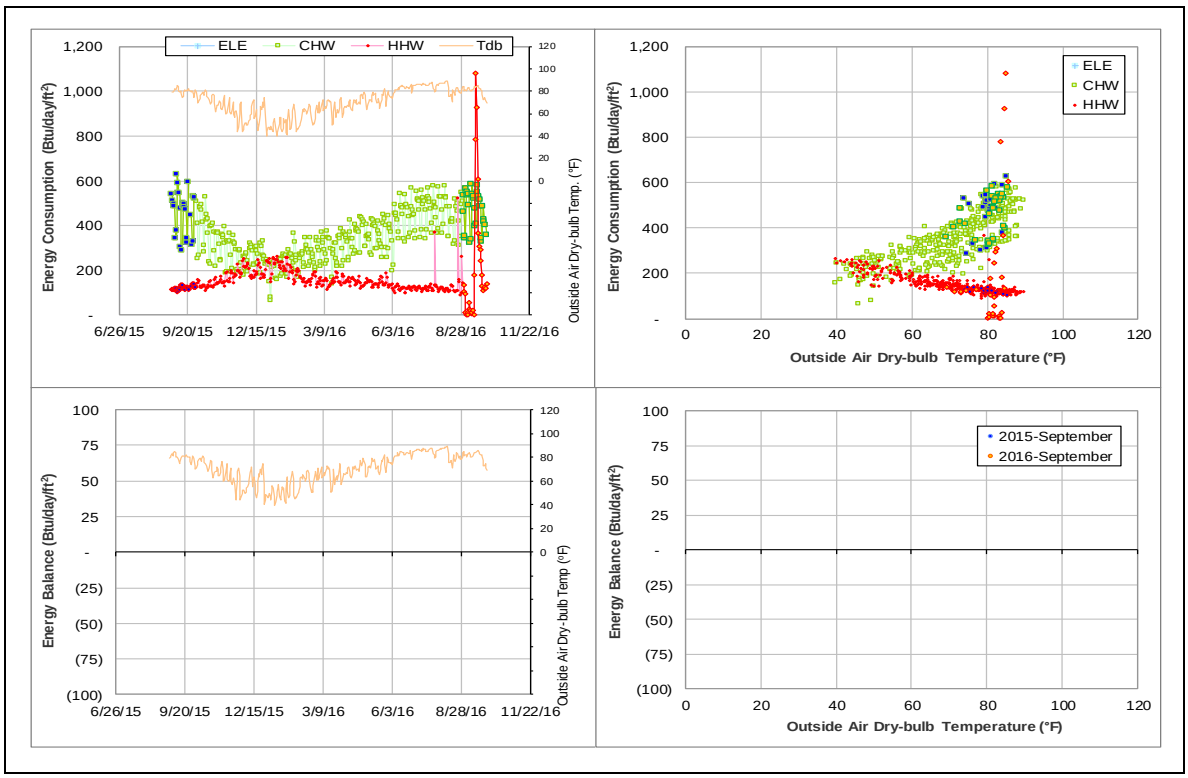
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	006943	9/4/2016 – 9/15/2016	Flow Rate	Near zero
		9/15/2016 – 9/24/2016	Flow Rate	Very high

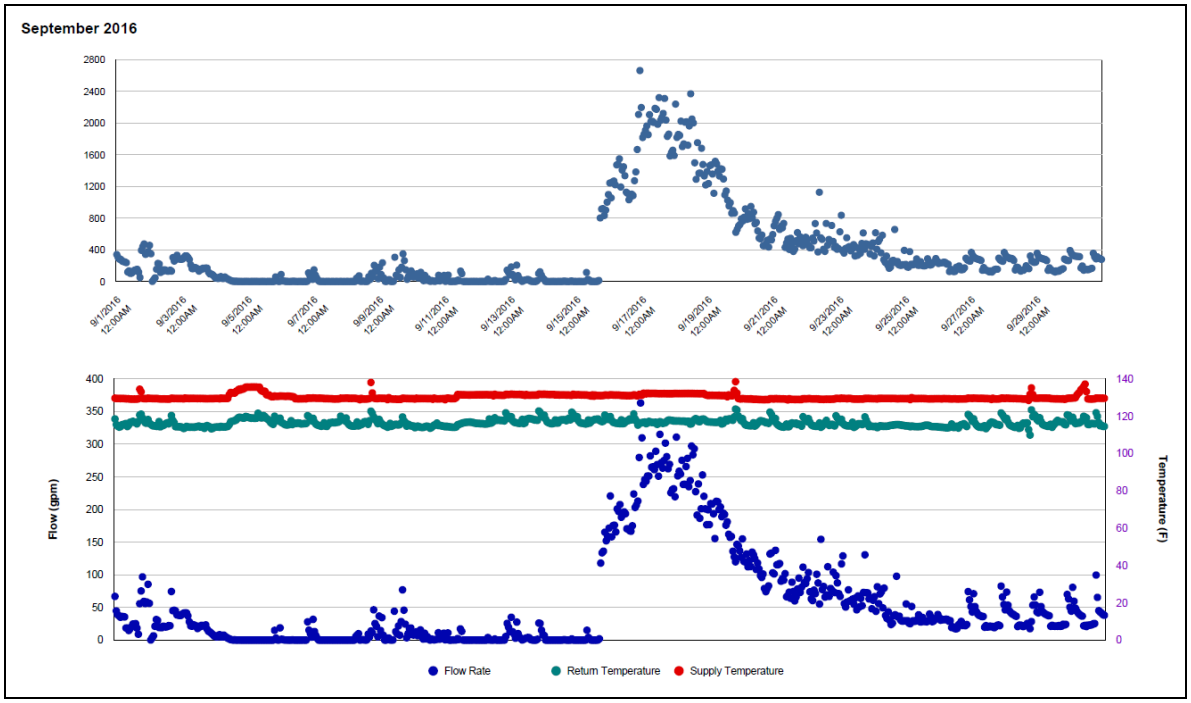
Quantitative descriptions and comments

The HHW flow rate readings dropped from 50 gpm to near zero starting 9/4/2016 and then saw a rapid increase on 9/15/2016 and peaked at 300 gpm on 9/18/2016. The flow rate level returned to 50 gpm on 9/24/2016. This fluctuating period is estimated by a model.

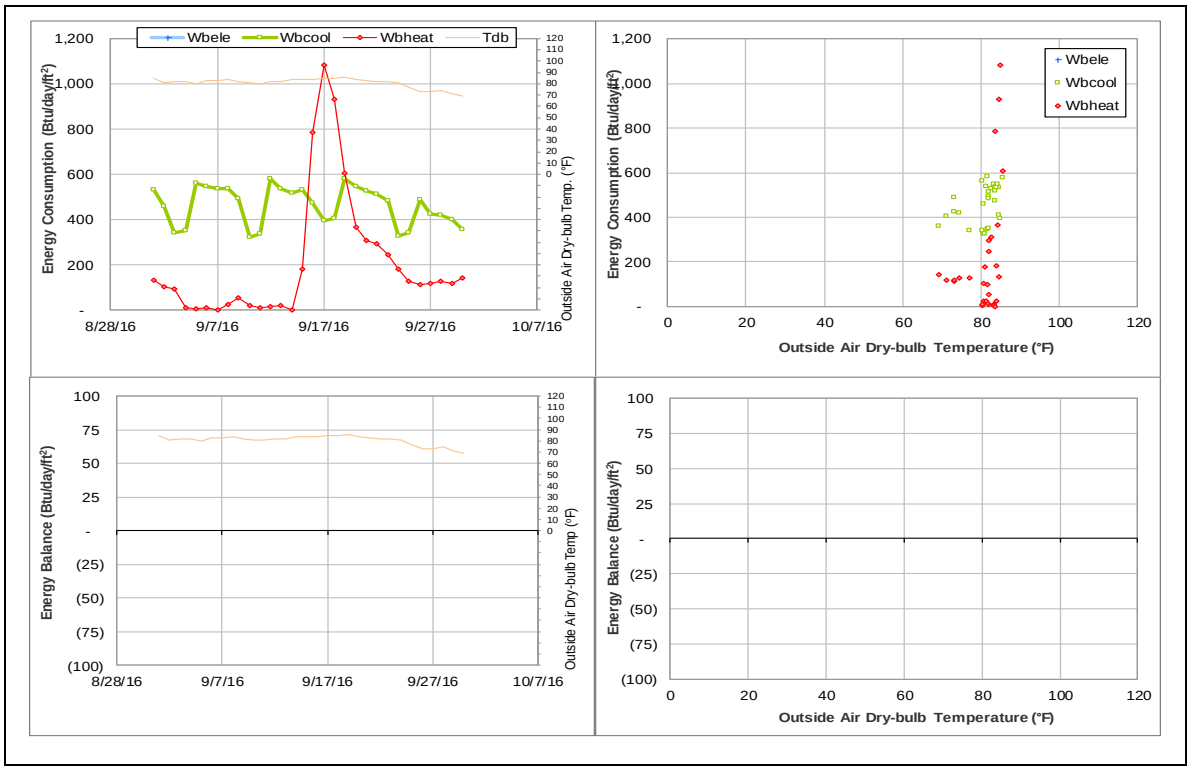
Explanatory Figure: 13 months energy balance plot with original data.



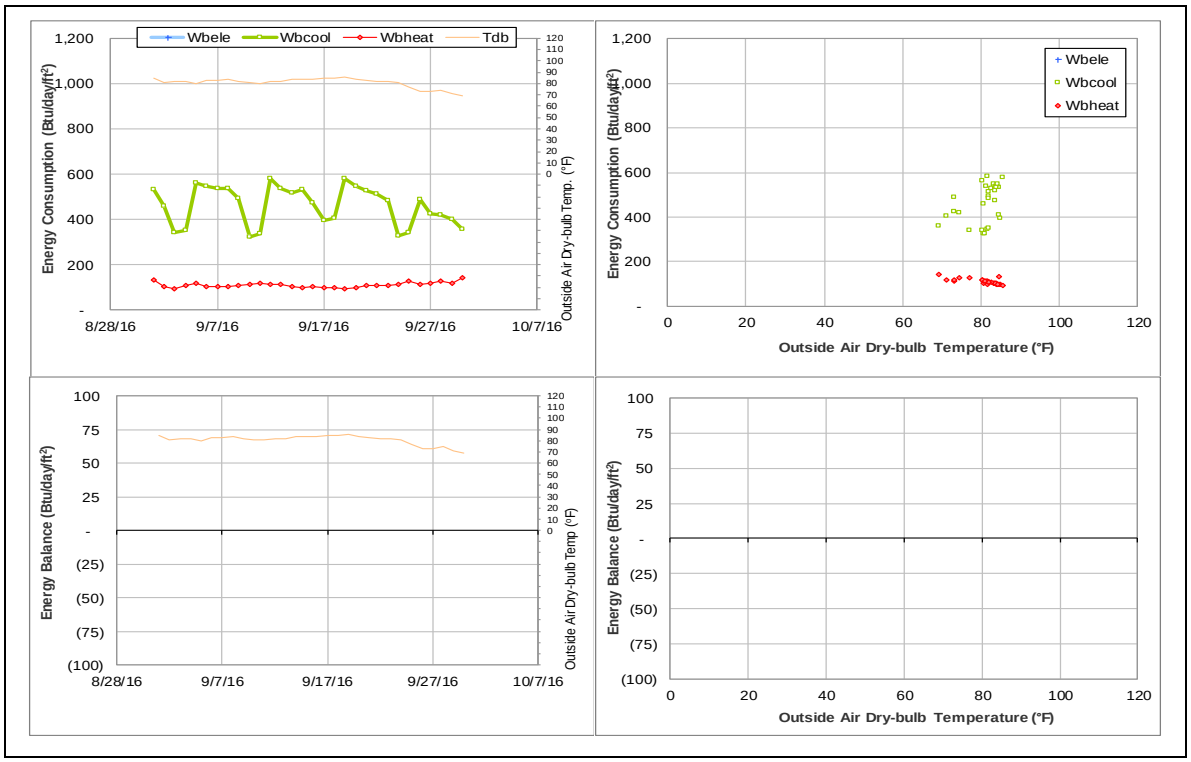
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Biological Sciences Building – East (TAMU Bldg #467)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003851	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	8/6/2016 – 9/30/2016

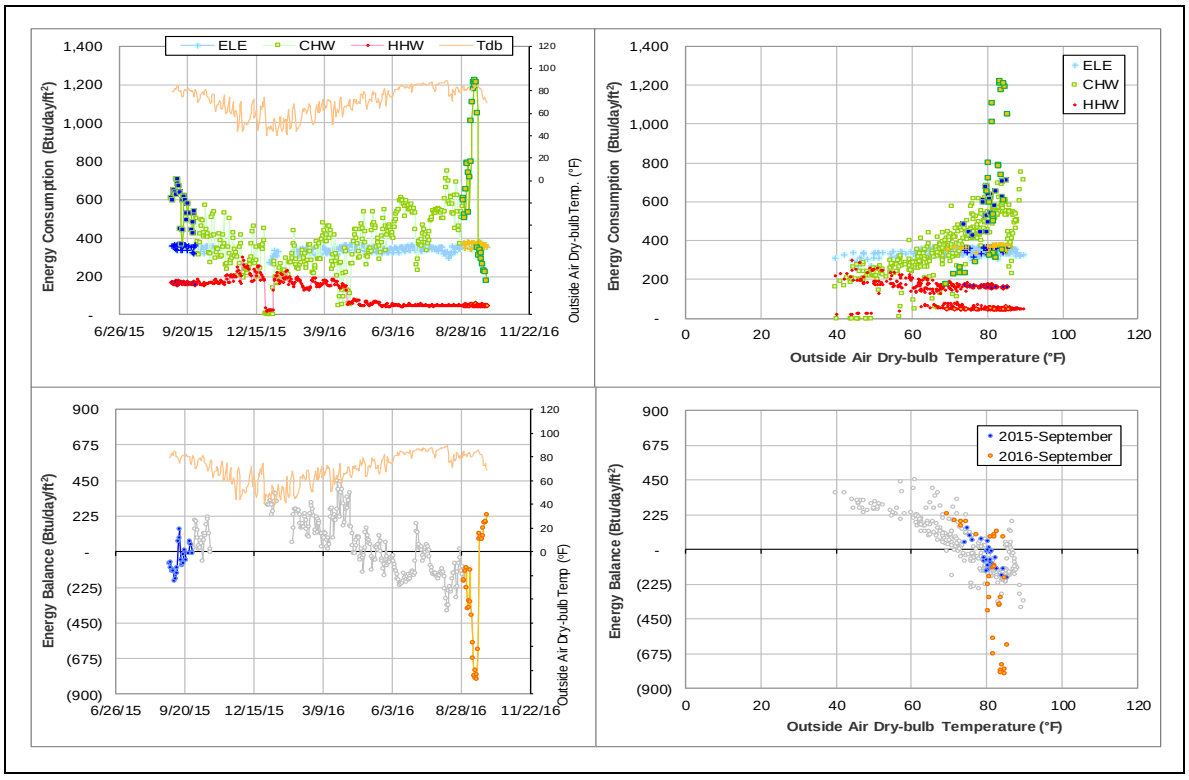
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003851	8/6/2016 – 9/30/2016	Supply Temp	Faulty

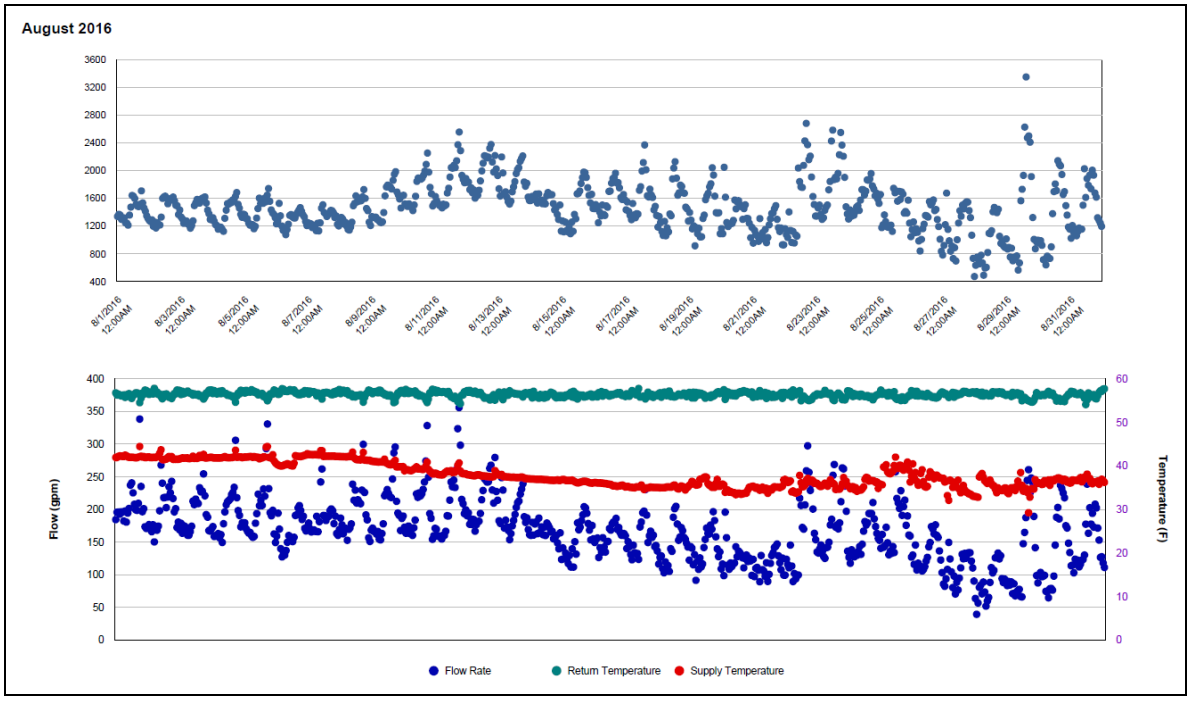
Quantitative descriptions and comments

The CHW supply temp readings started to decrease on 8/6/2016 while all adjacent buildings have stable supply temp at circa 42°F. The supply temp had a period of obviously erroneous values of 20°F during 9/10 – 9/20/2016, and then increased to 45°F. The readings are still questionable and the whole month is estimated using a model. See also section II-3.

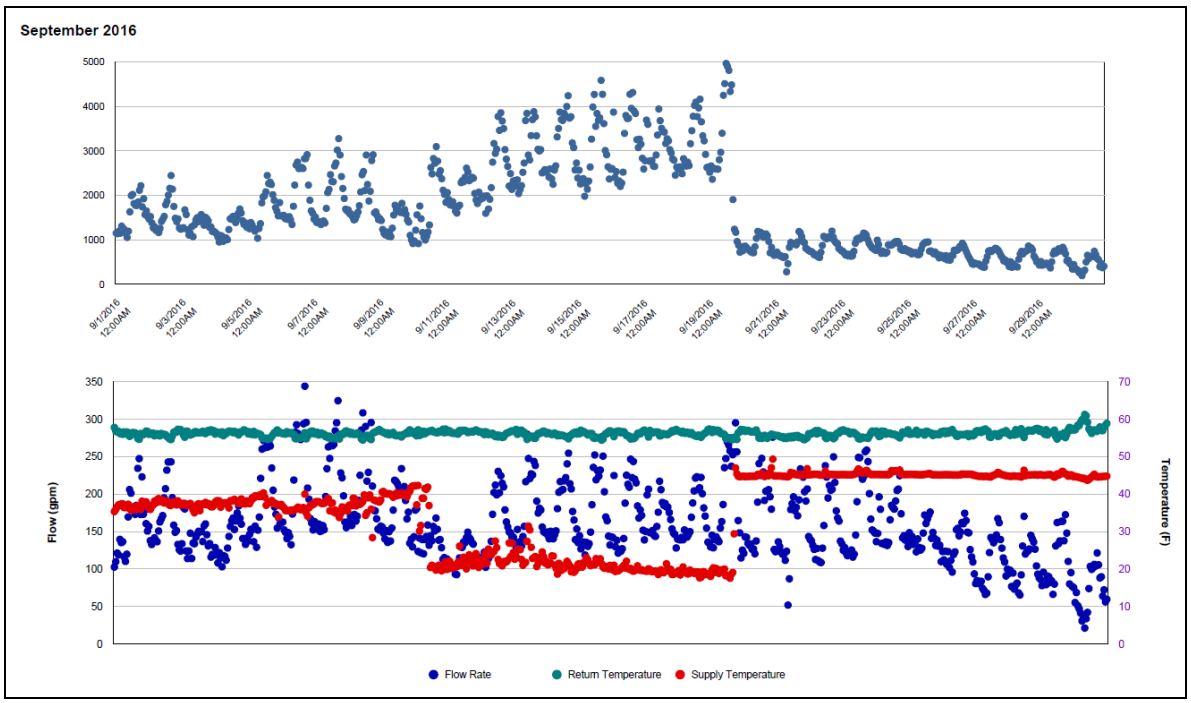
Explanatory Figure: 13 months energy balance plot with original data.



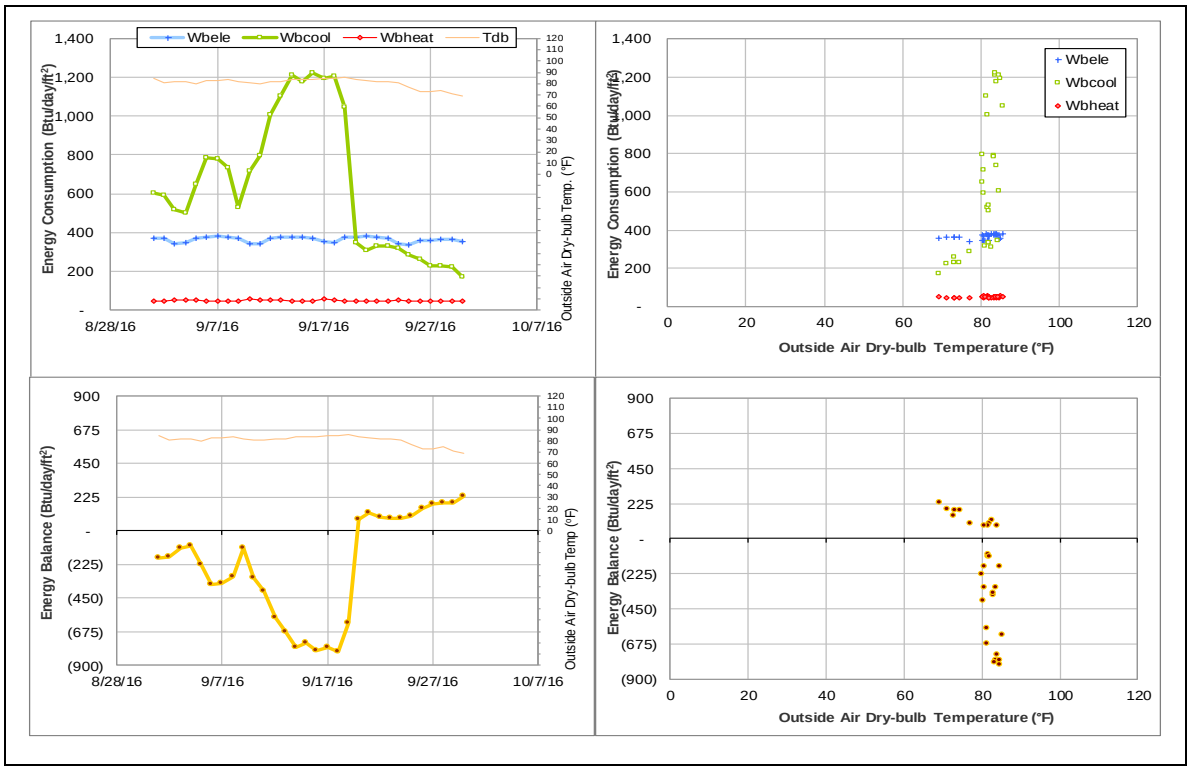
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during August 2016)



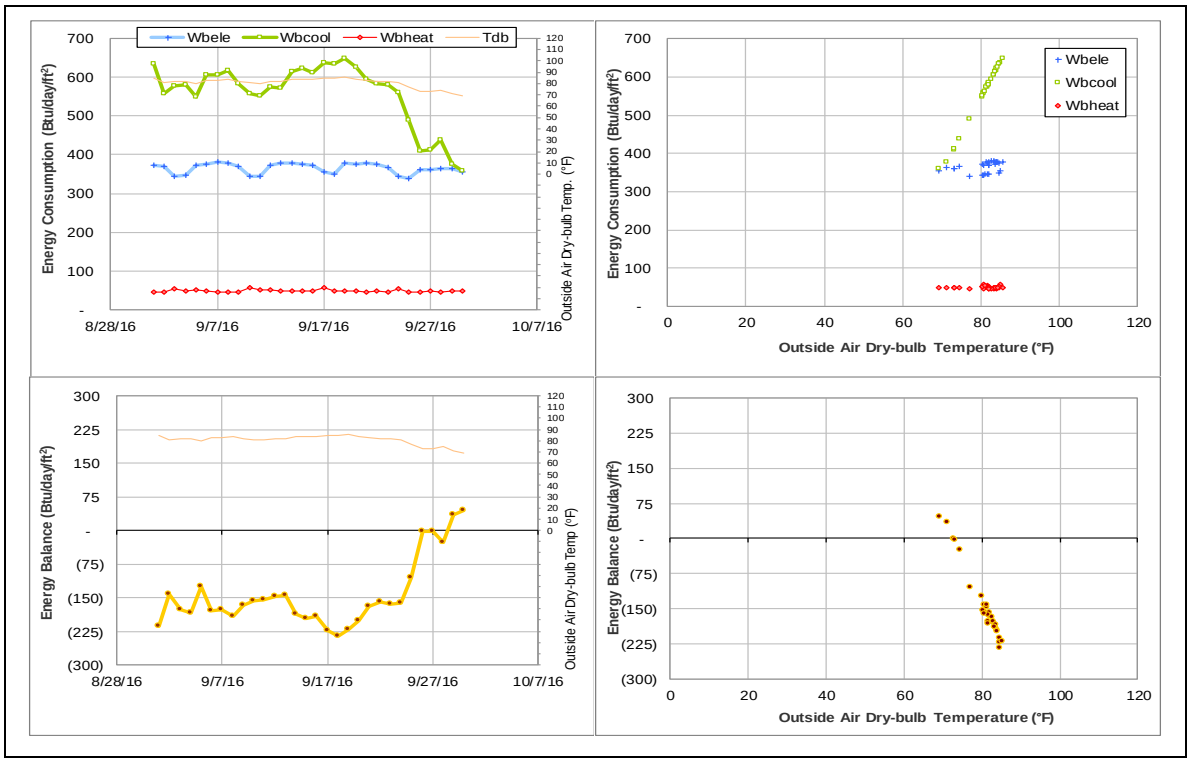
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Thompson Hall (TAMU Bldg #483)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	003887	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The metered values appear to be faulty.	7/26/2016 – 9/30/2016

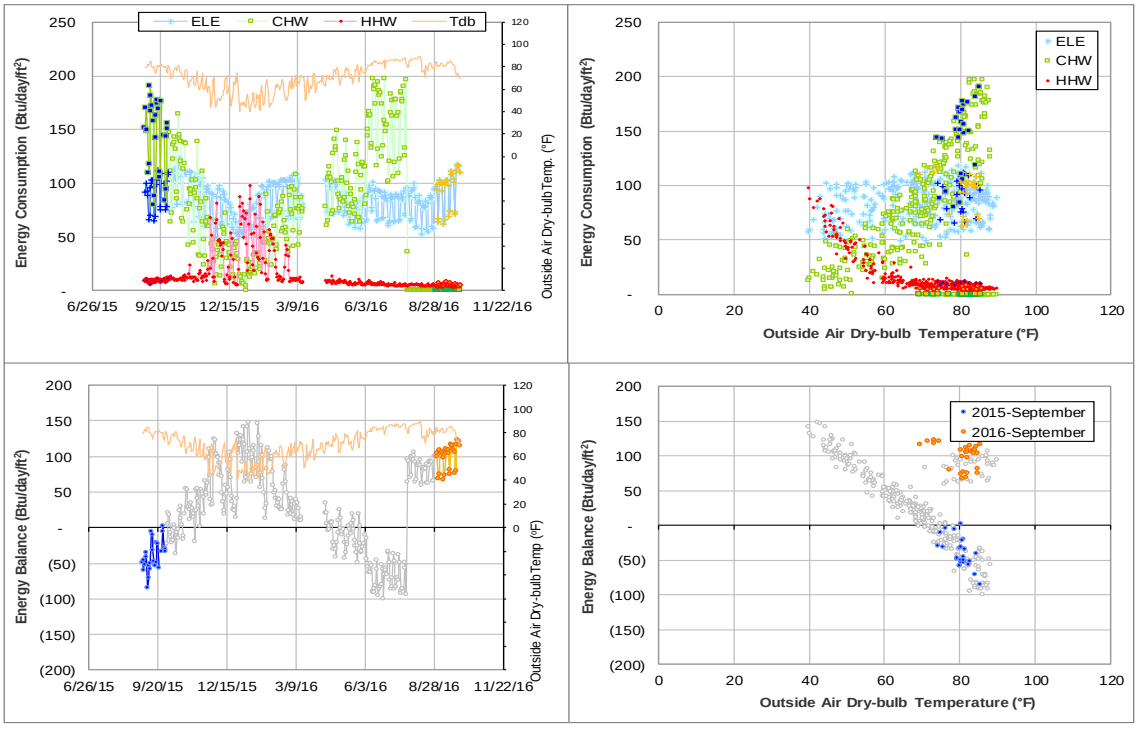
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	003887	7/26/2016 – 9/30/2016	Flow Rate	Faulty

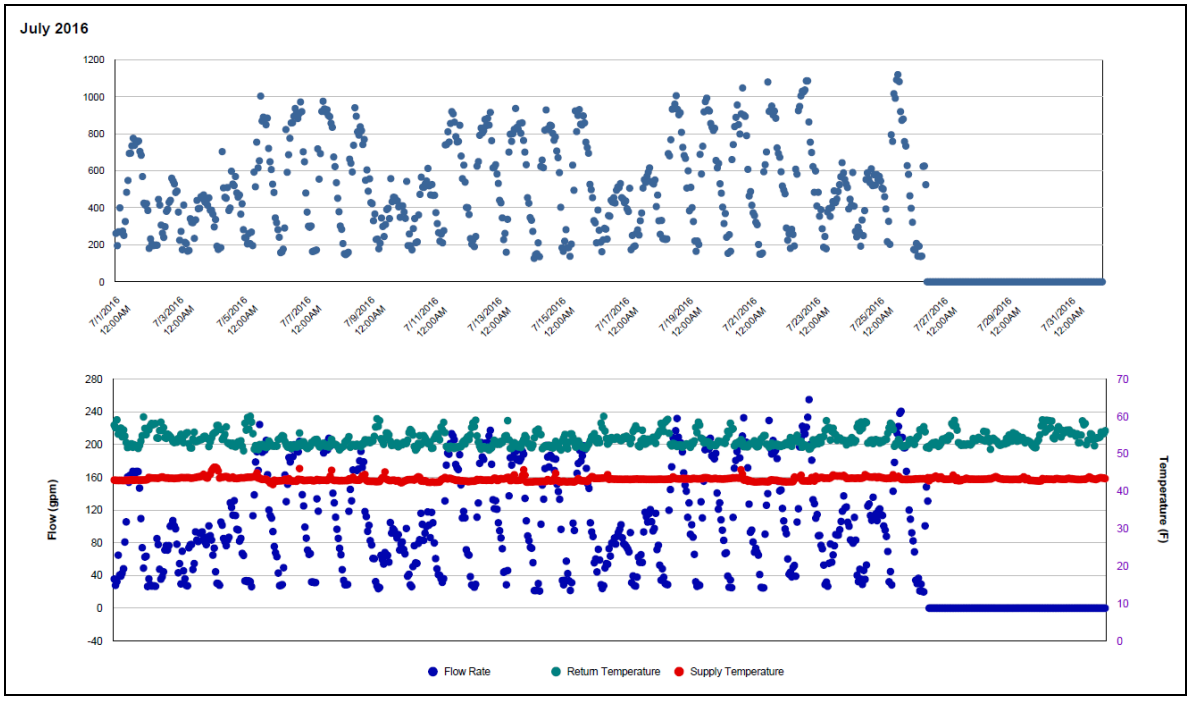
Quantitative descriptions and comments

The CHW flow rate readings became constant -0.0008 gpm since 7/26/2016. The consumption is estimated by a model.

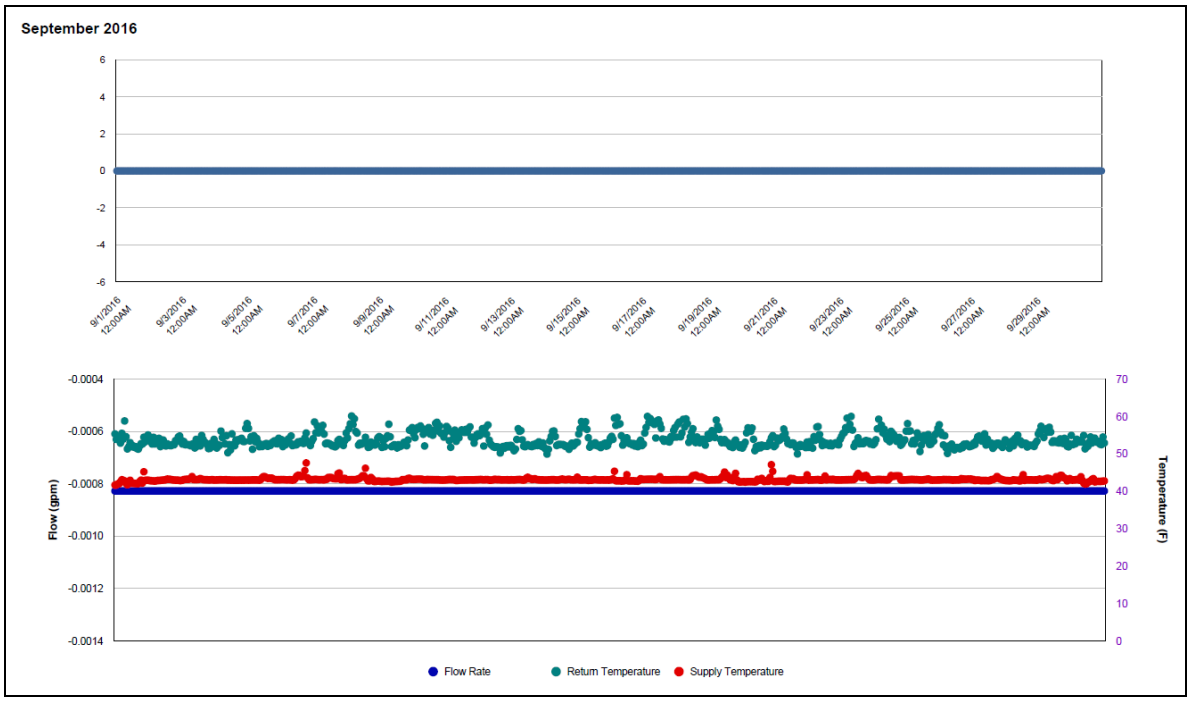
Explanatory Figure: 13 months energy balance plot with original data.



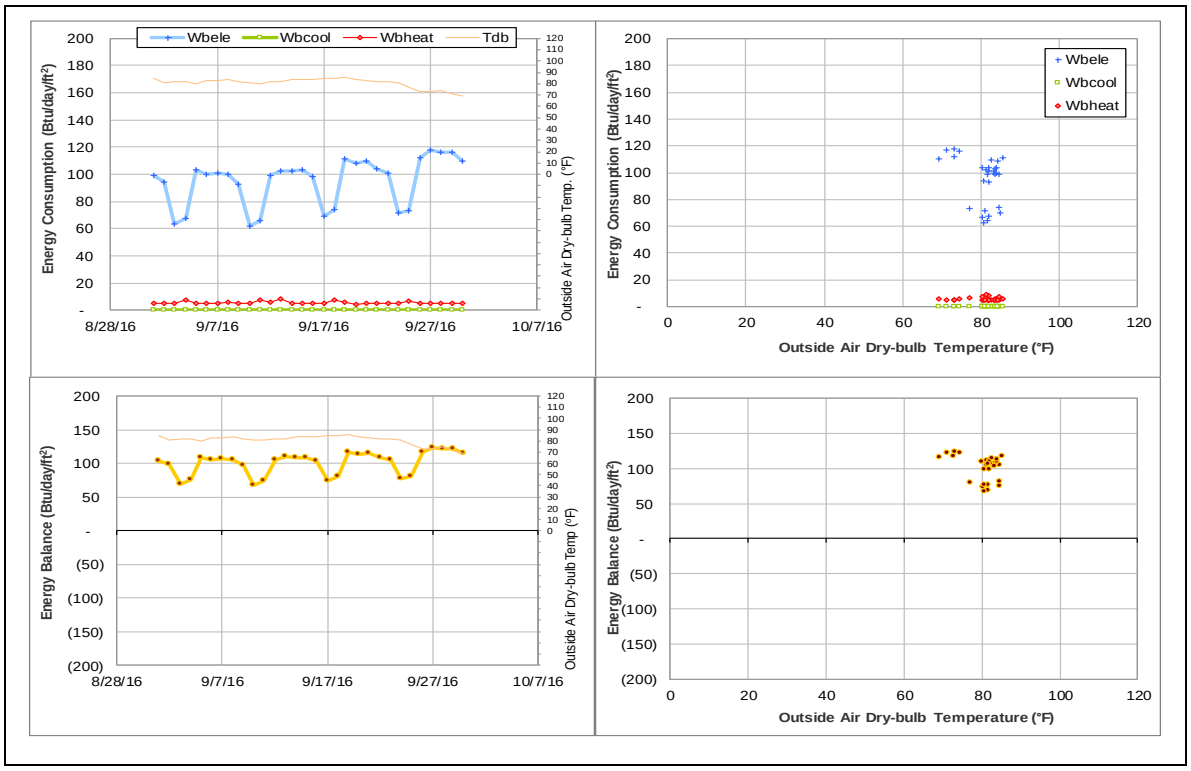
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during July 2016)



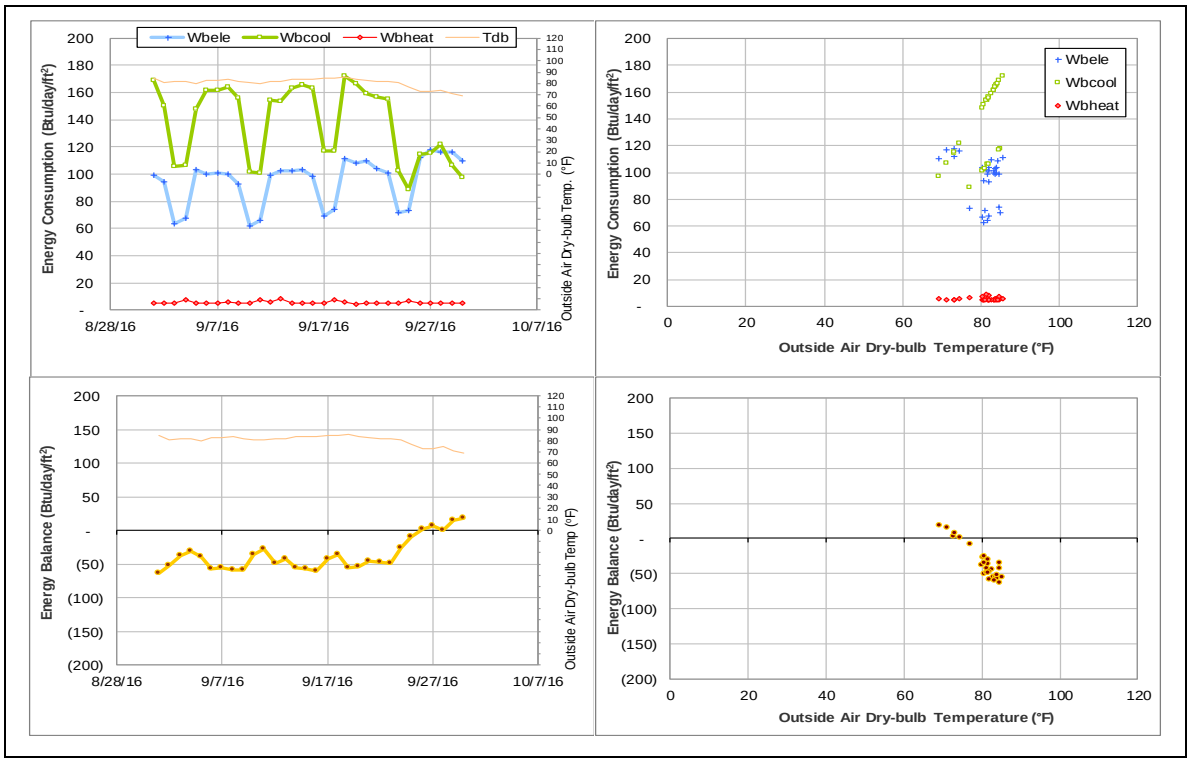
Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Heep Laboratory Building (TAMU Bldg #511)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005821	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level increased.	6/14/2016 – Ongoing
Energy Balance	The energy balance pattern dropped.	6/14/2016 – Ongoing

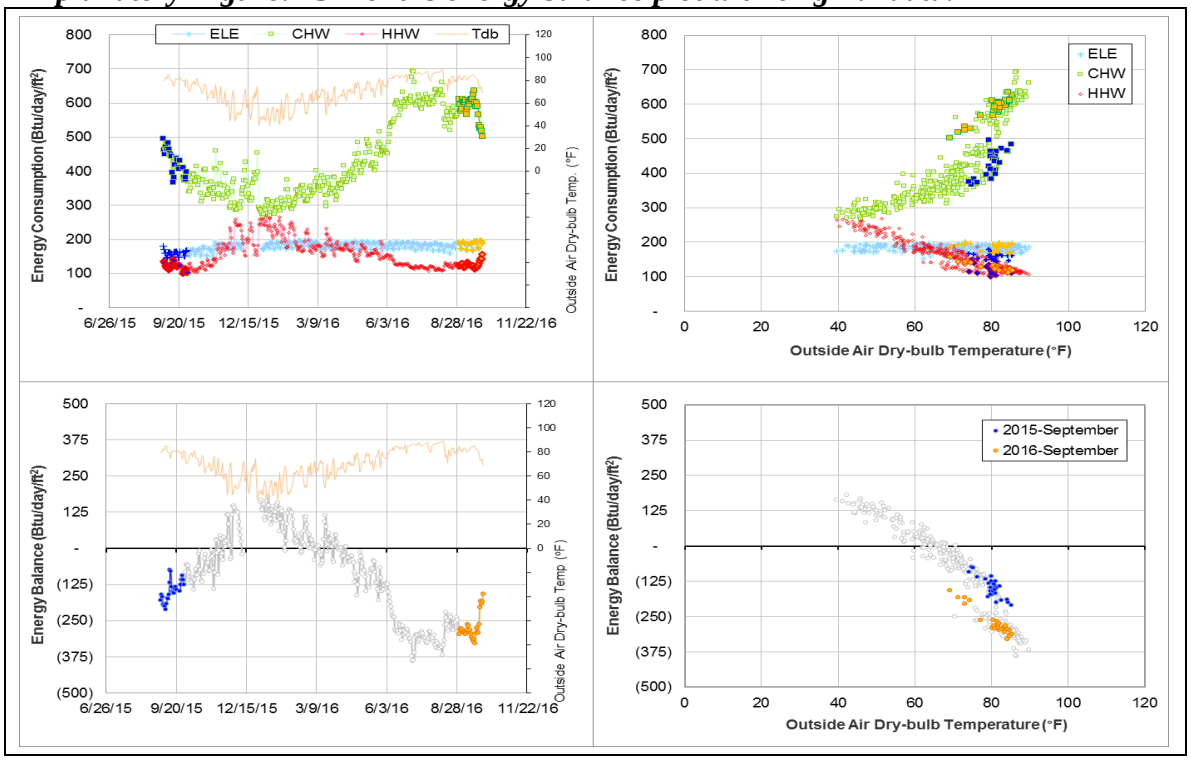
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005821	6/14/2016 – Ongoing	Delta-T	Increased

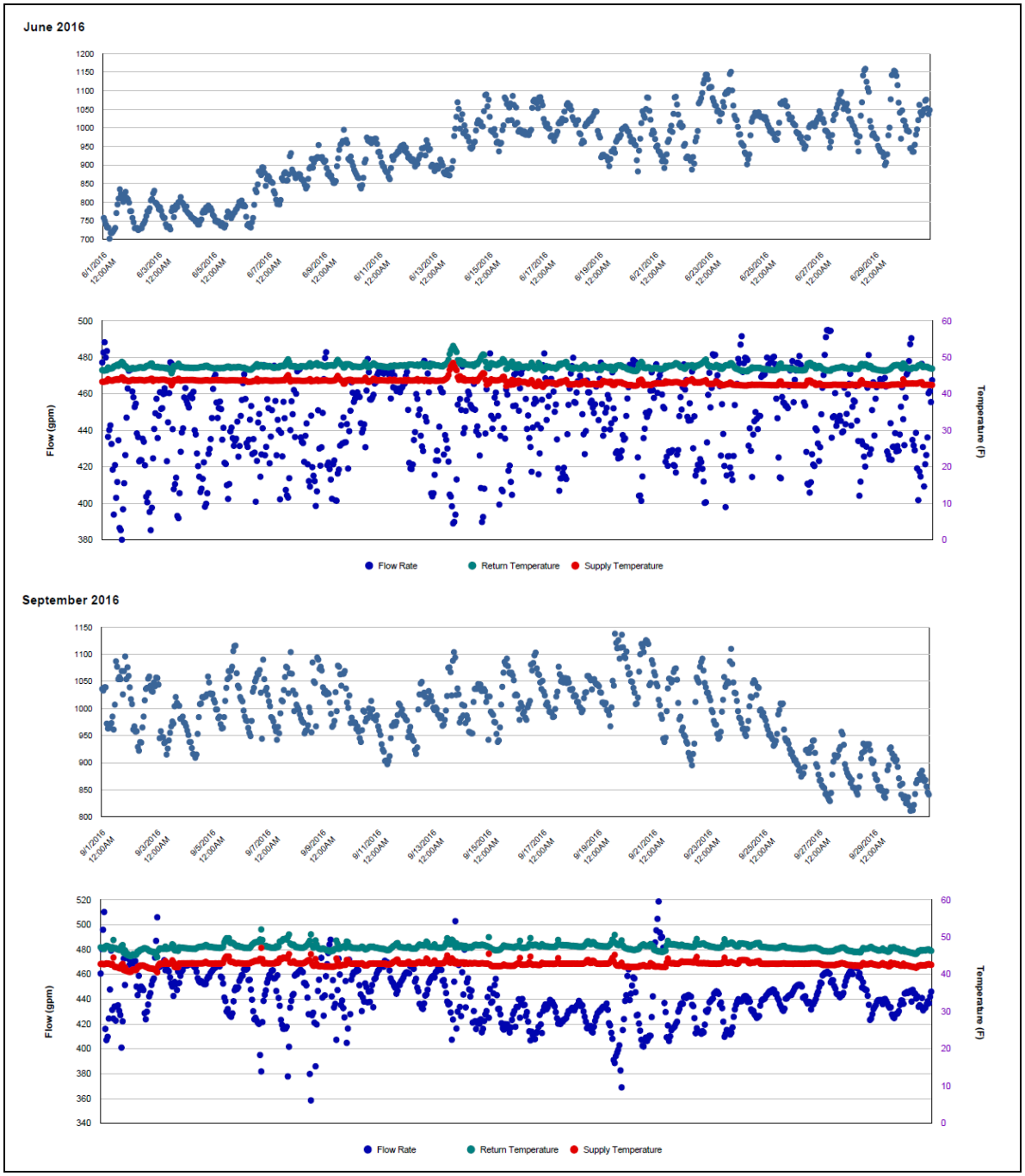
Quantitative descriptions and comments

The CHW consumption increased by 100 Btu/day/ft^2 starting around 6/14/2016 and the pattern continues through September. This increased energy consumption pattern can be clearly seen sitting above the 13-month pattern in the energy balance plot below. This appears to be due to an increase in delta T. Also, the pattern for the building's energy balance appears to have shifted downward, putting the change-point temperature below 60°F. CHW consumption was estimated by model for September.

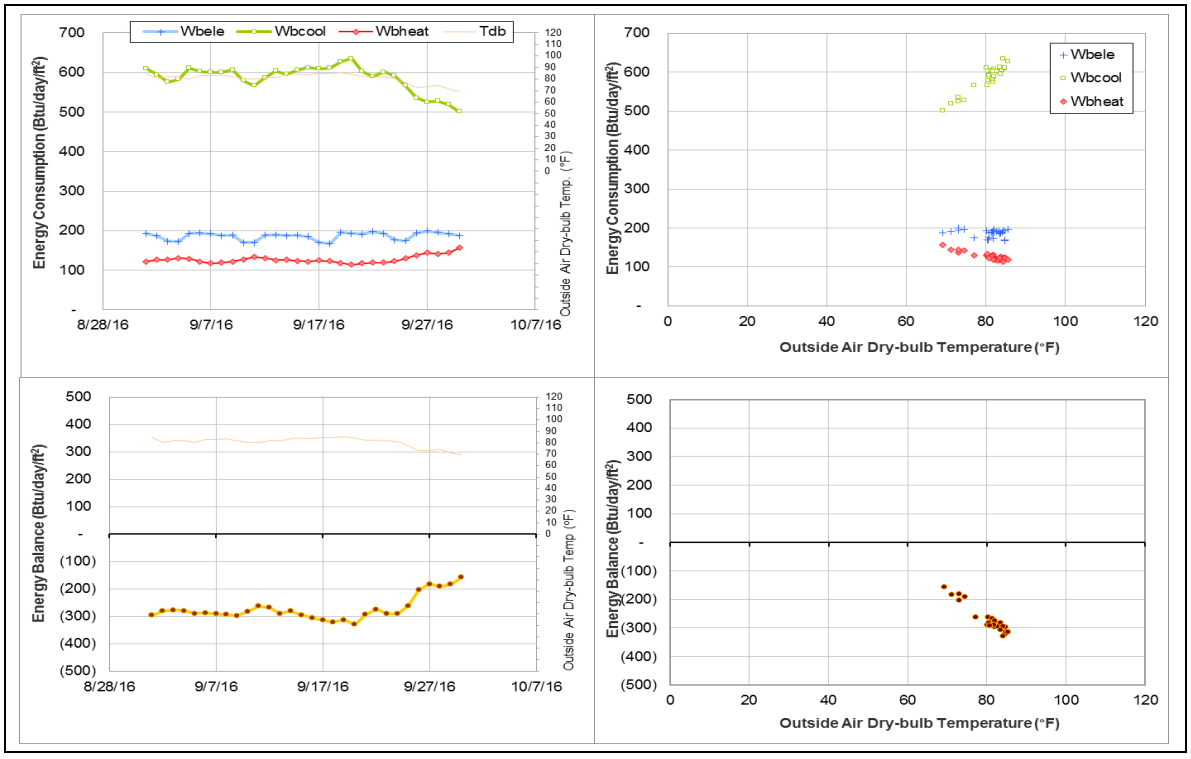
Explanatory Figure: 13 months energy balance plot with original data.



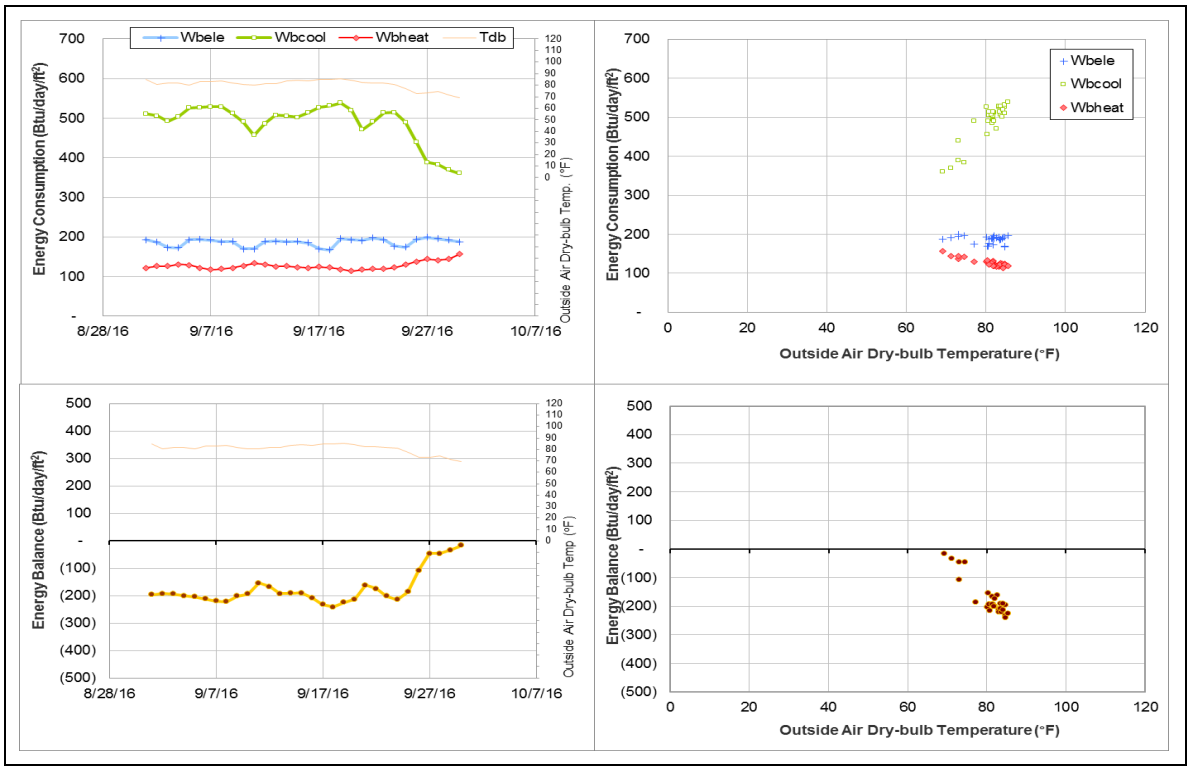
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (top: June 2016, bottom: September 2016) Note the gradual increase in delta T started in June 2016.



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



All Faiths Chapel (TAMU Bldg #512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	004293	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The HHW consumption decreased to near zero.	7/6/2016 – Ongoing

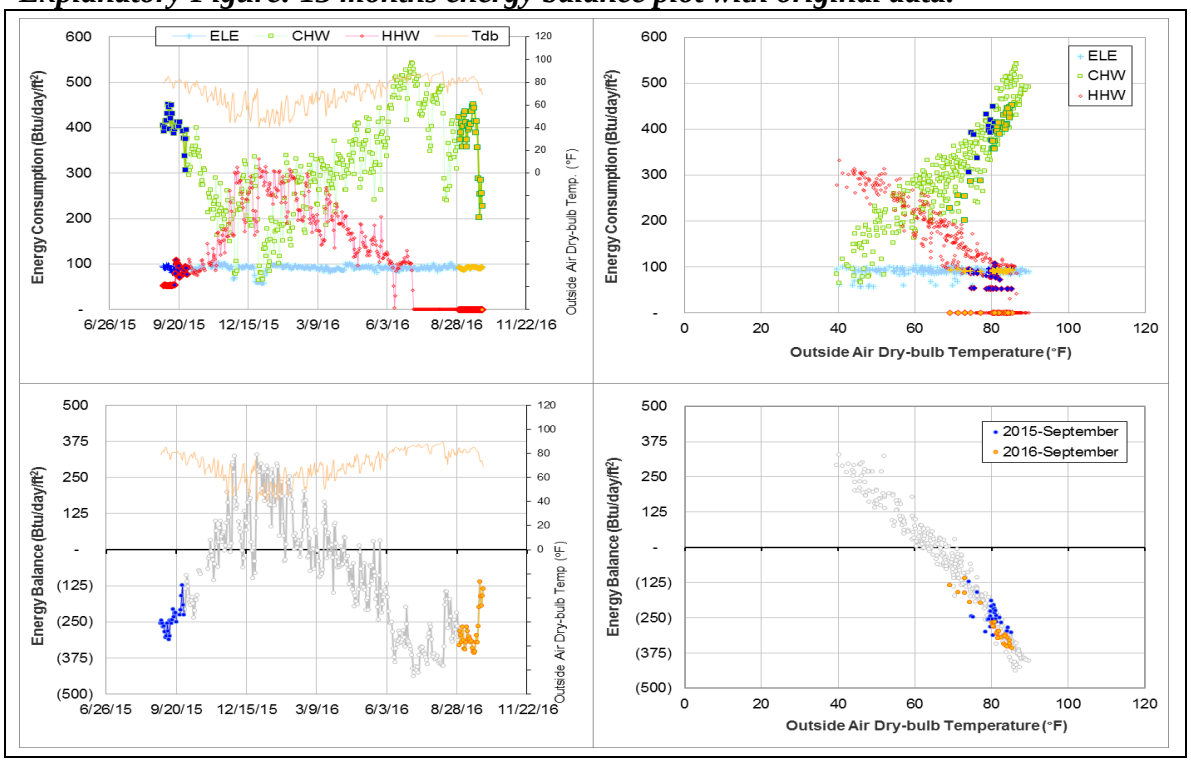
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	004293	7/6/2016 – Ongoing	Flow rate	Sudden decrease, nearly zero
			Delta-T	Sudden decrease, nearly zero

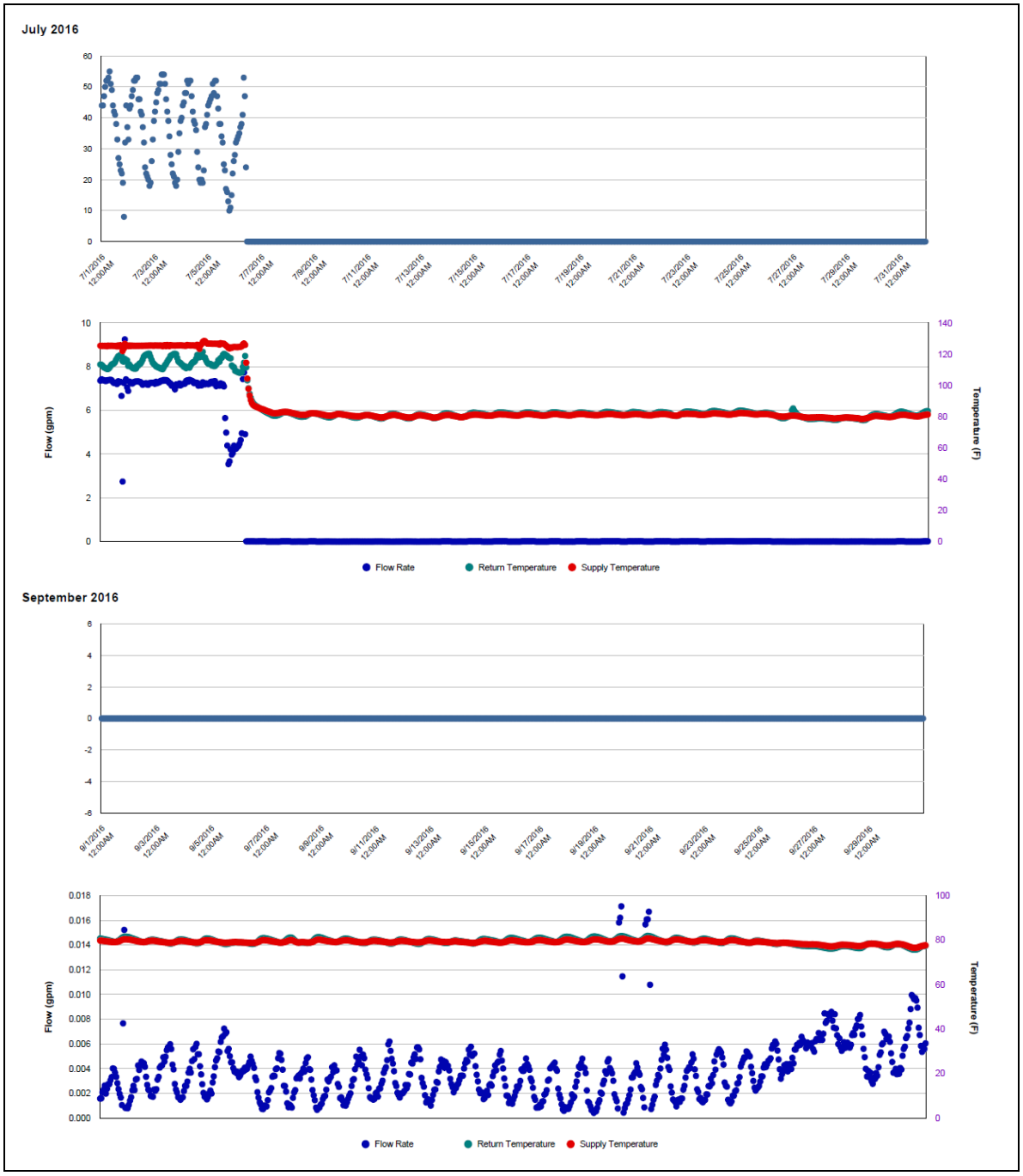
Quantitative descriptions and comments

Starting around 7/6/2016, the HHW flow rate decreased to near zero and both supply and return temperature dropped to around 80°F and has continued like this through September. The HHW was estimated by model for this period.

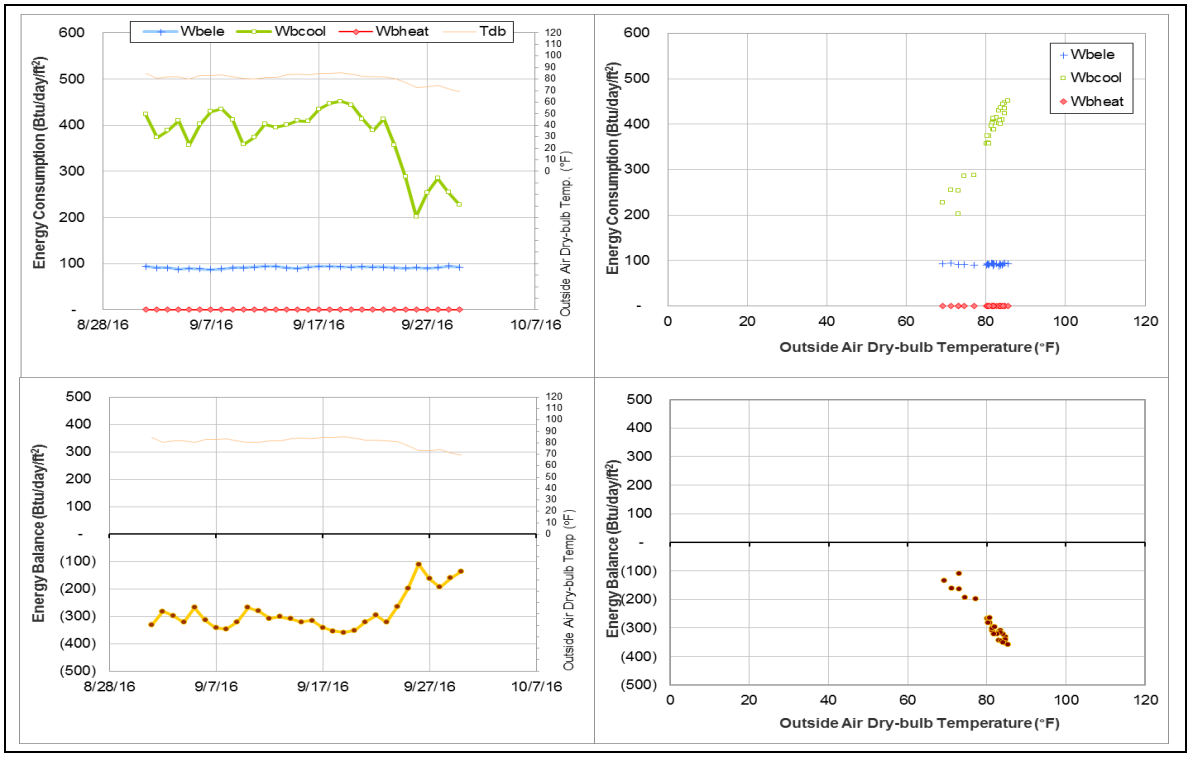
Explanatory Figure: 13 months energy balance plot with original data.



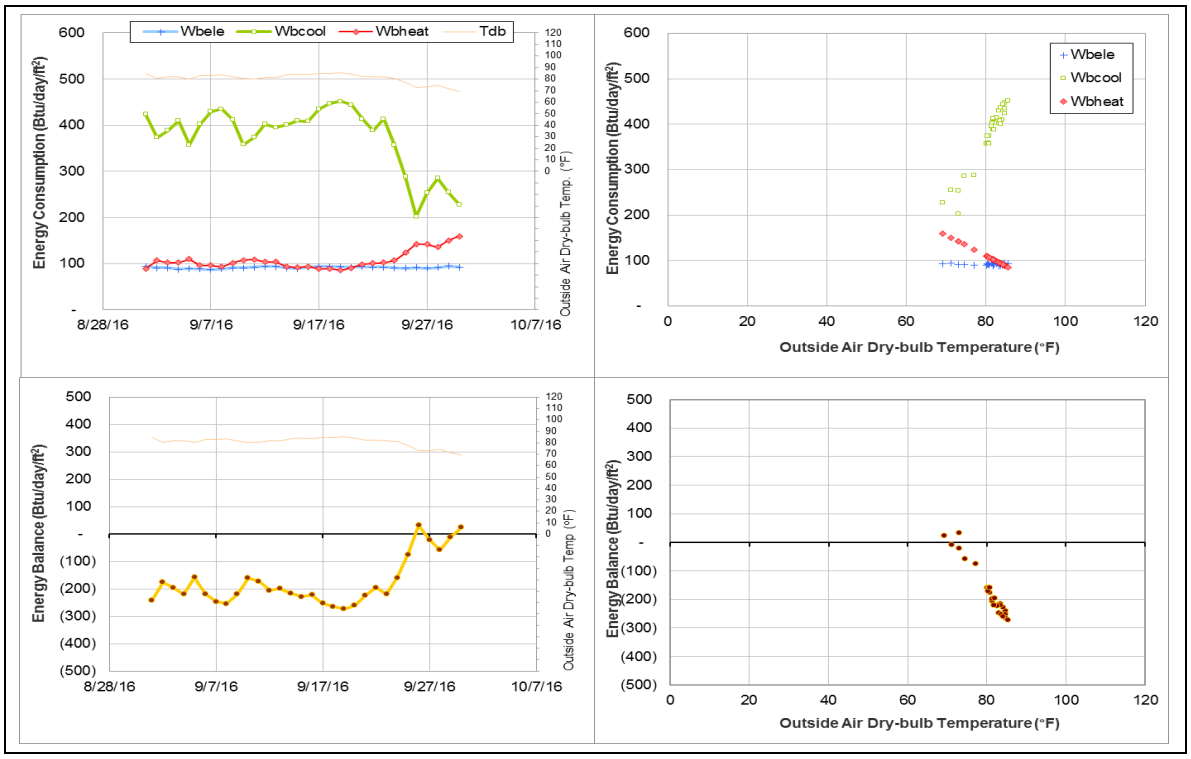
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow, and supply/return temperatures from utilities office. (top: July 2016, bottom: September 2016)



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Haas Residence Hall (TAMU Bldg #549)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	001398	24	9/1/2016, 9/5/2016, 9/8/2016 – 9/29/2016	Model

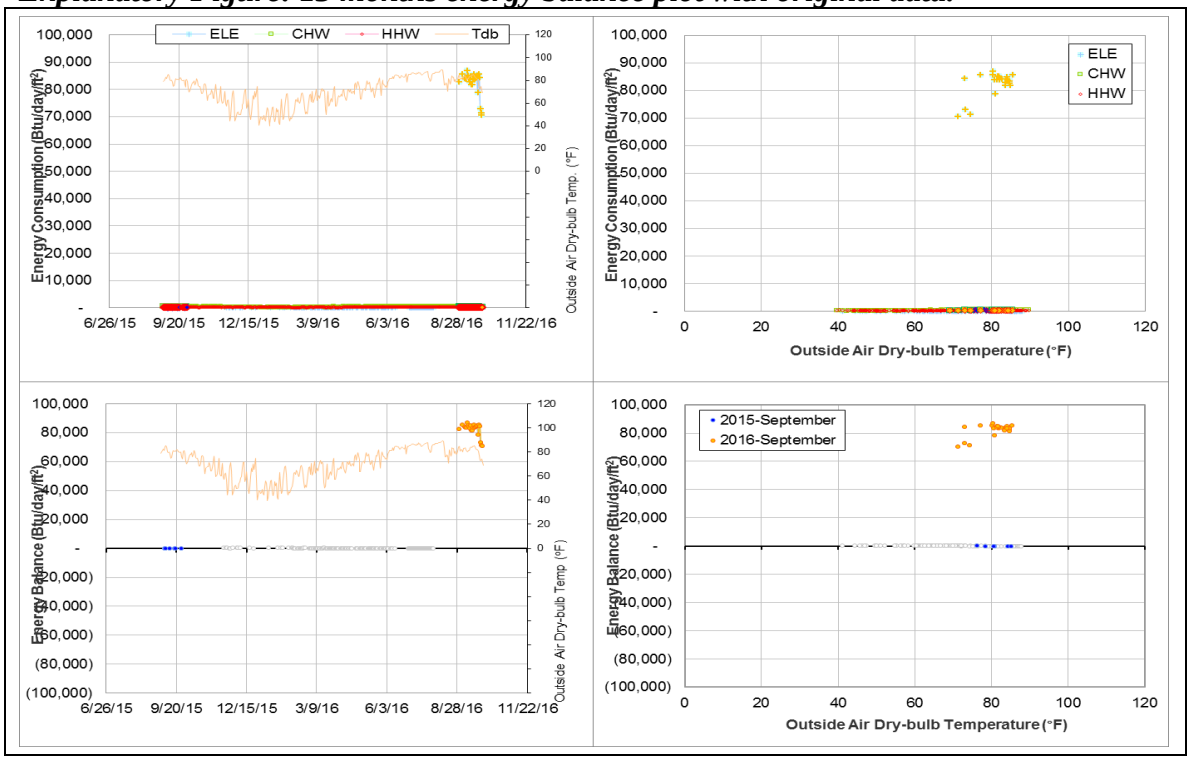
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The ELE consumption level has increased greatly.	9/1/2016, 9/5/2016, 9/8/2016 – 9/29/2016

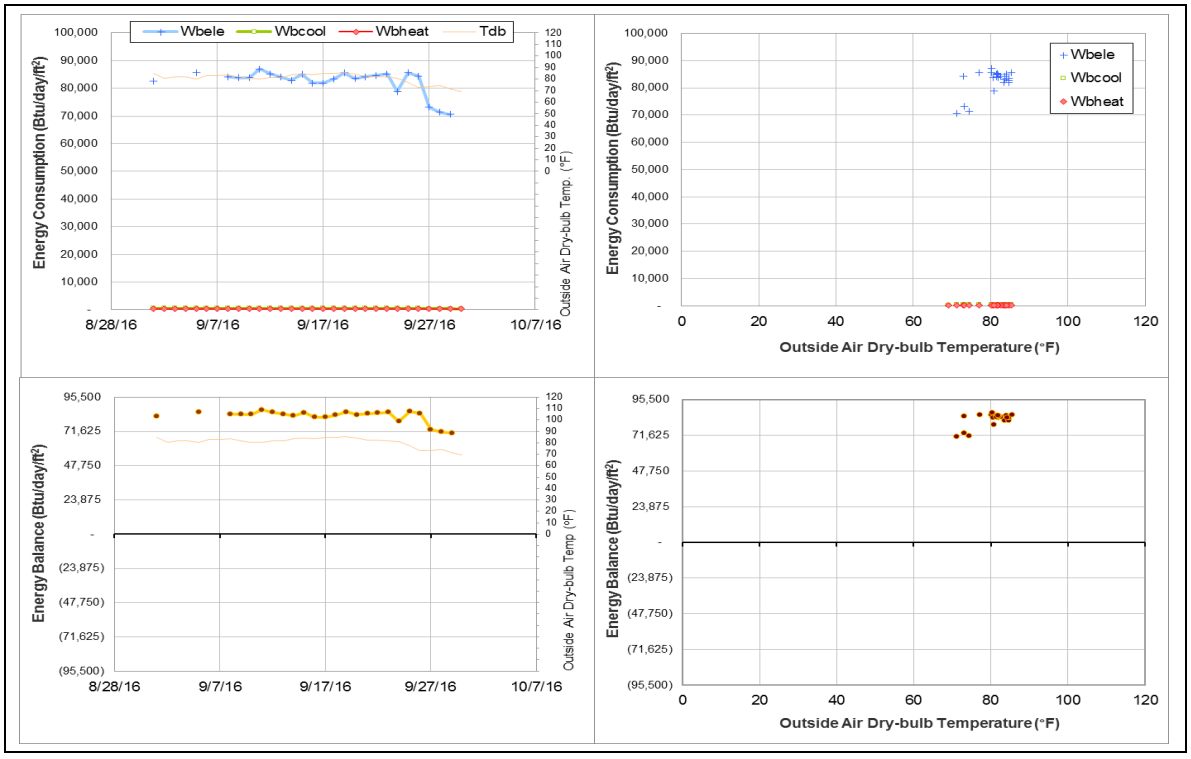
Quantitative descriptions and comments

The electricity consumption for meter #001398 increased since 9/1/2016, almost 1000 times greater than what is expected. This could possibly be due to a unit setting. The electricity for these days was estimated by dividing by a factor of 1000.

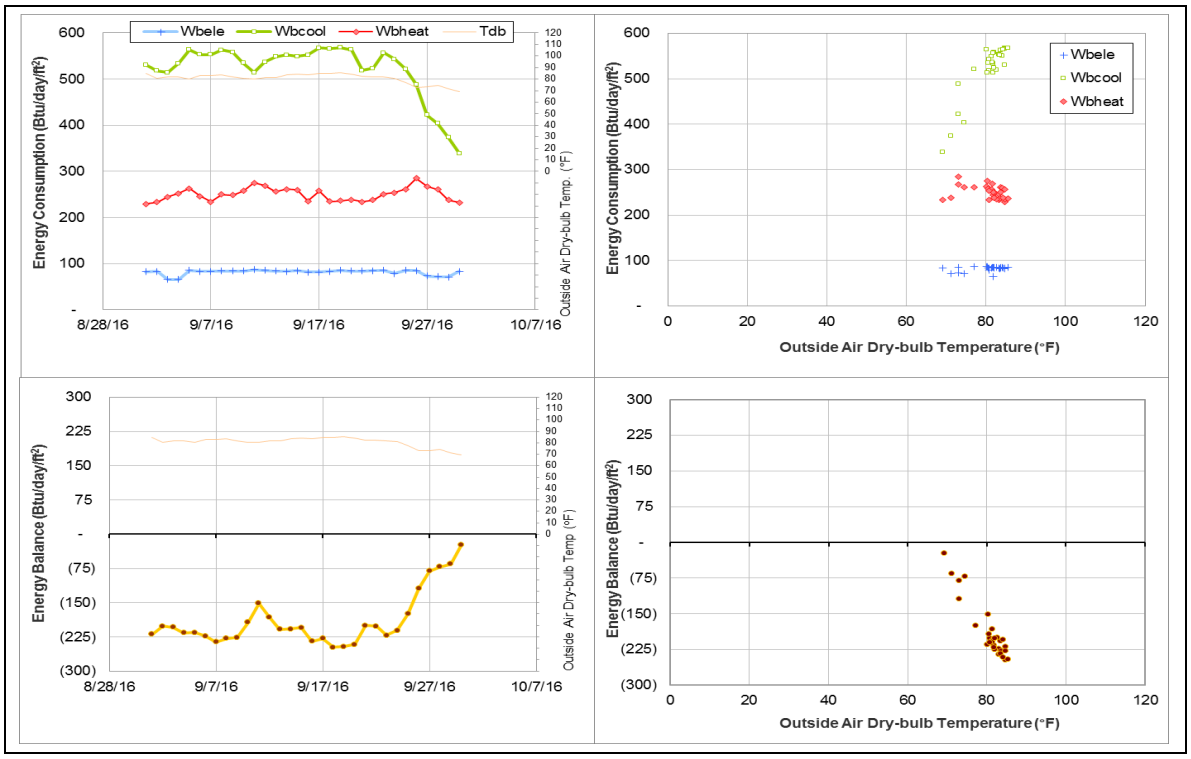
Explanatory Figure: 13 months energy balance plot with original data.



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



McNew Laboratory (TAMU Bldg #740)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	005968	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Decrease in HHW consumption.	5/31/2016– Ongoing

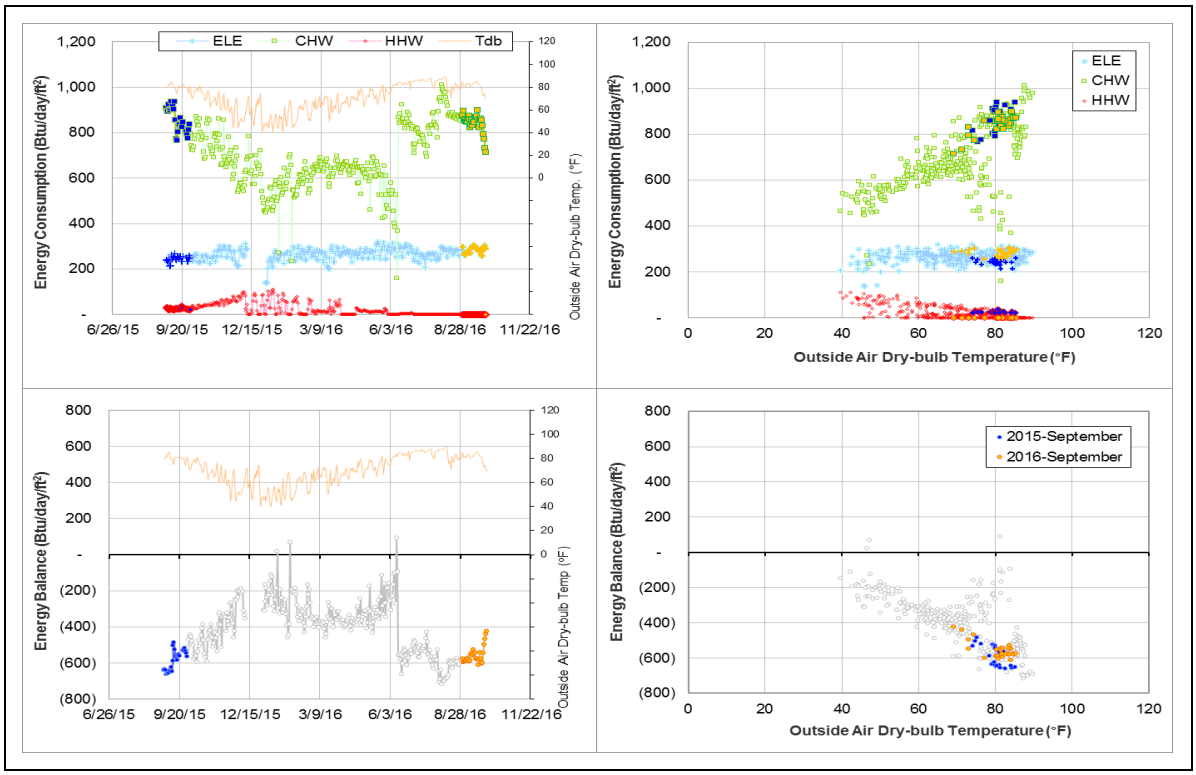
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	005968	5/31/2016 – Ongoing	Flow rate	Decrease to near zero values

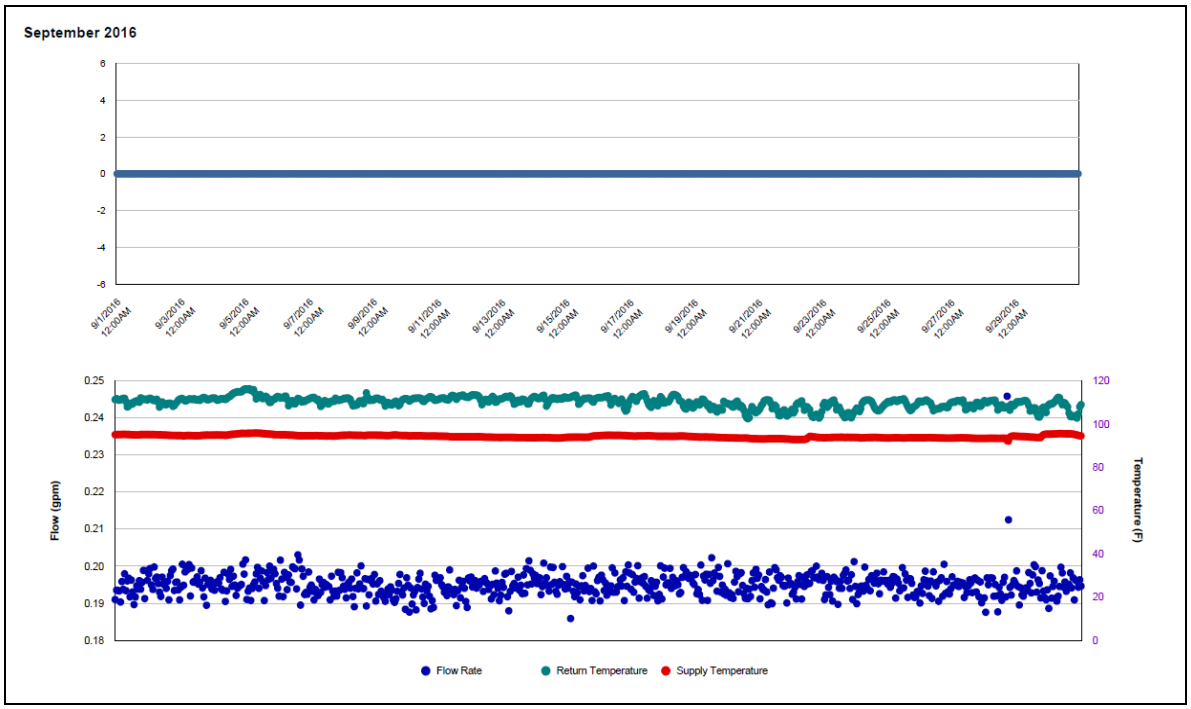
Quantitative descriptions and comments

The HHW flow rate has been zero or near zero since May 2016. While the reduction could be due to not needing HHW during the summer months, there does appear to be HHW consumption when looking back to September of last year. The HHW flow rate ranged 16-32 gpm during September 2016. Based on the indication of last year's consumption, it was decided to estimate the HHW by model for September 2016.

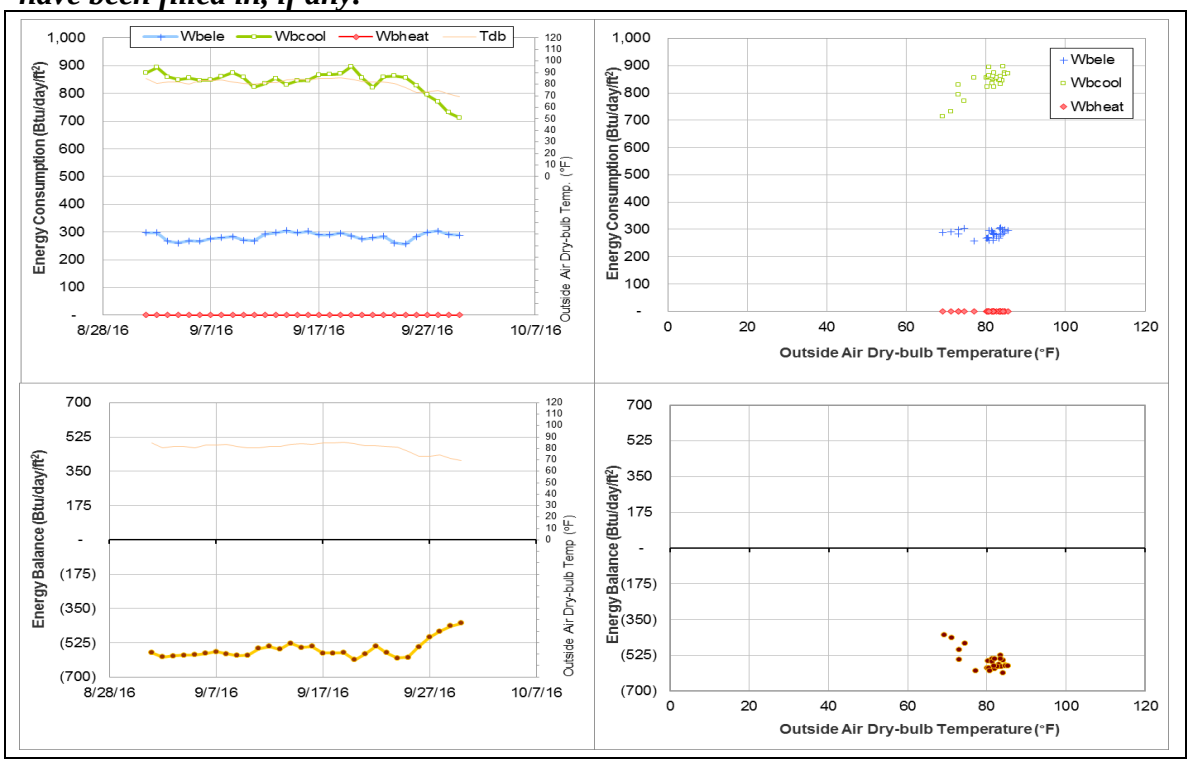
Explanatory Figure: 13 months energy balance plot with original data



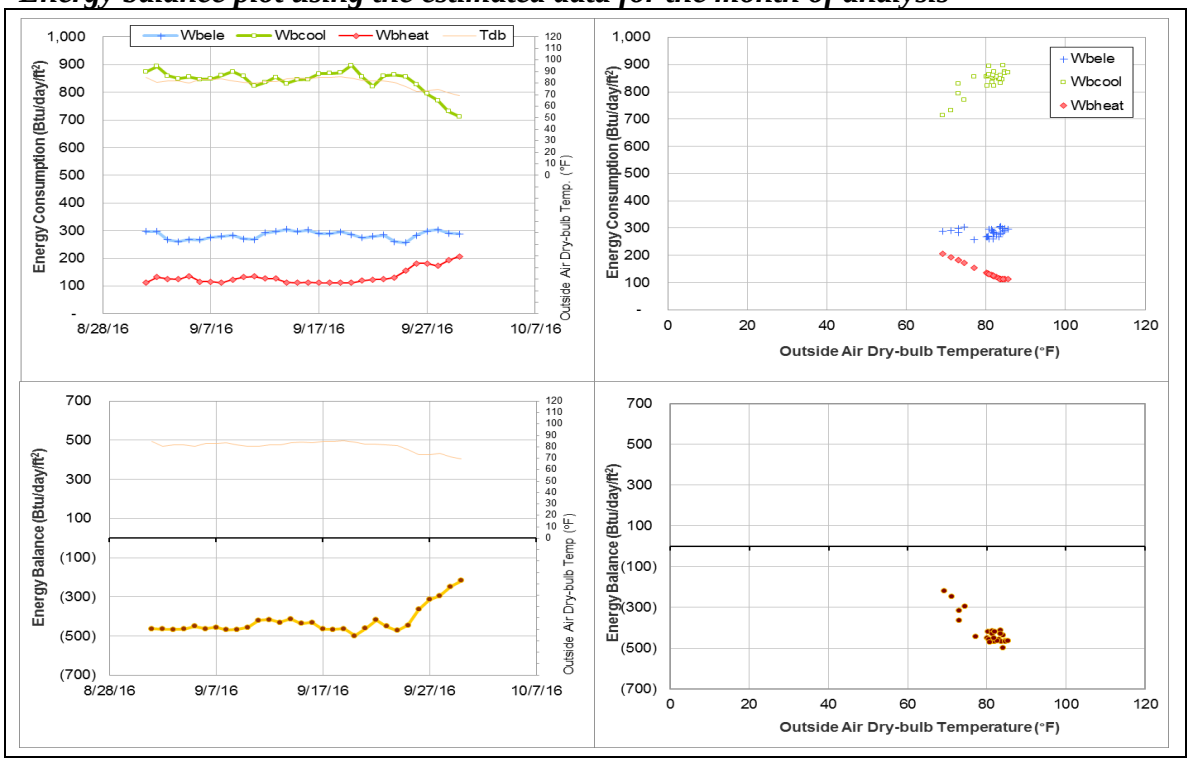
Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



TVMC-Small Animal Building (TAMU Bldg #880)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
CHW	005958	30	9/1/2016 – 9/30/2016	Model

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The CHW consumption level has decreased.	4/1/2016 – Ongoing

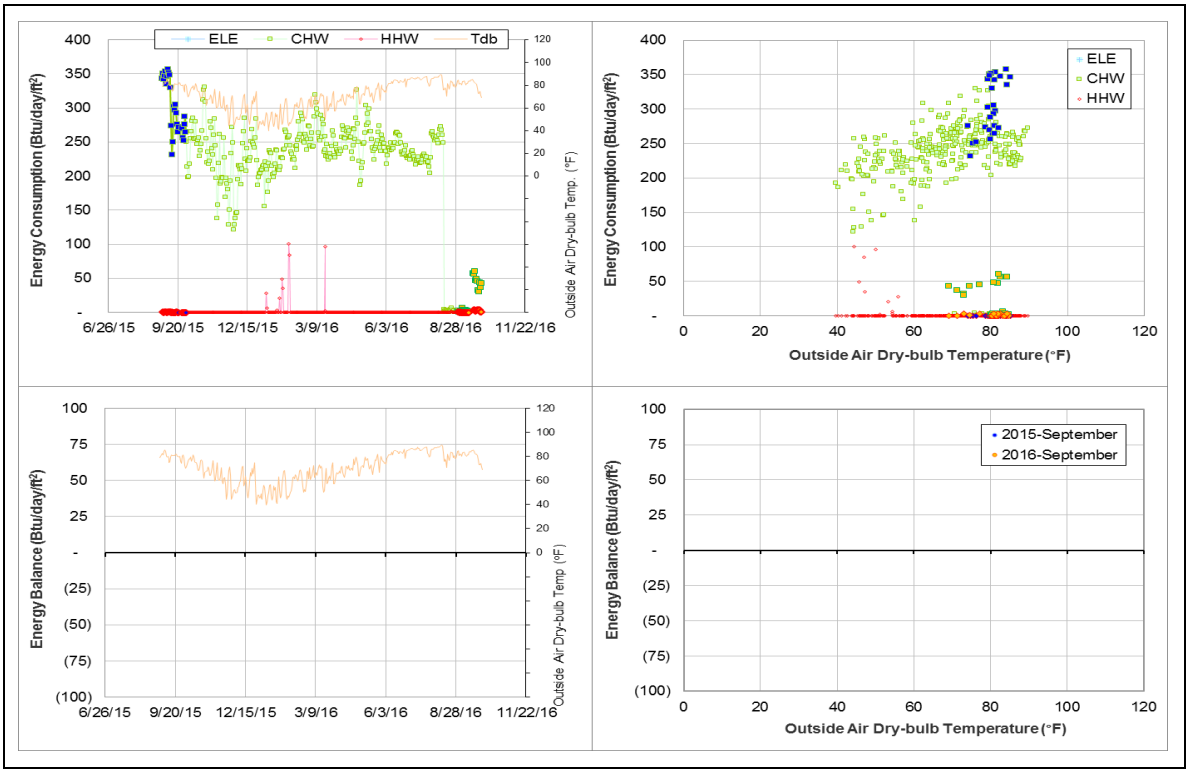
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
CHW	005958	8/15/2016 – 9/15/2016	Delta-T	Near zero
		9/16/2016 – Ongoing	Delta-T	Small

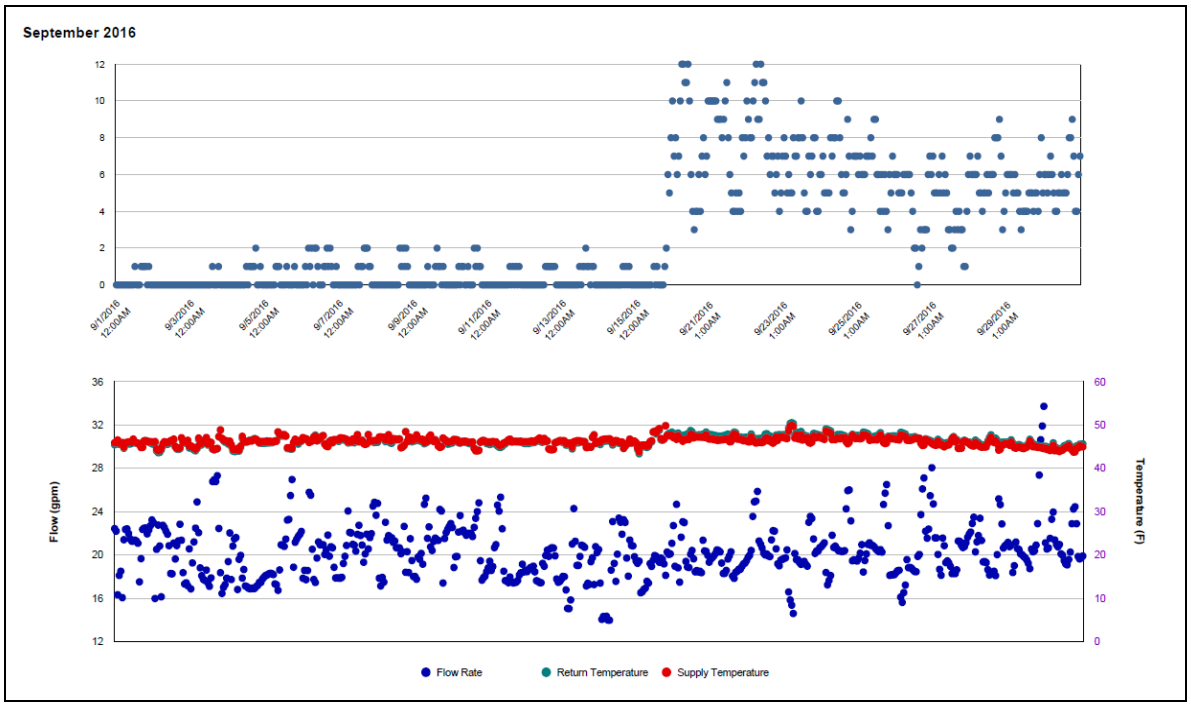
Quantitative descriptions and comments

The monthly CHW consumption has been decreasing since April. The recent energy consumption pattern has flattened out in higher temperatures. When comparing the consumption levels for April through early August, they are at the same consumption level as Feb and Mar. It looks like the Delta-T has not increased since winter, almost half of what it was last summer, and on 8/15/2016 the Delta-T decreased again but to near zero values. On 9/16/2016 the Delta-T increased but only by a little. The CHW for September has been estimated by model.

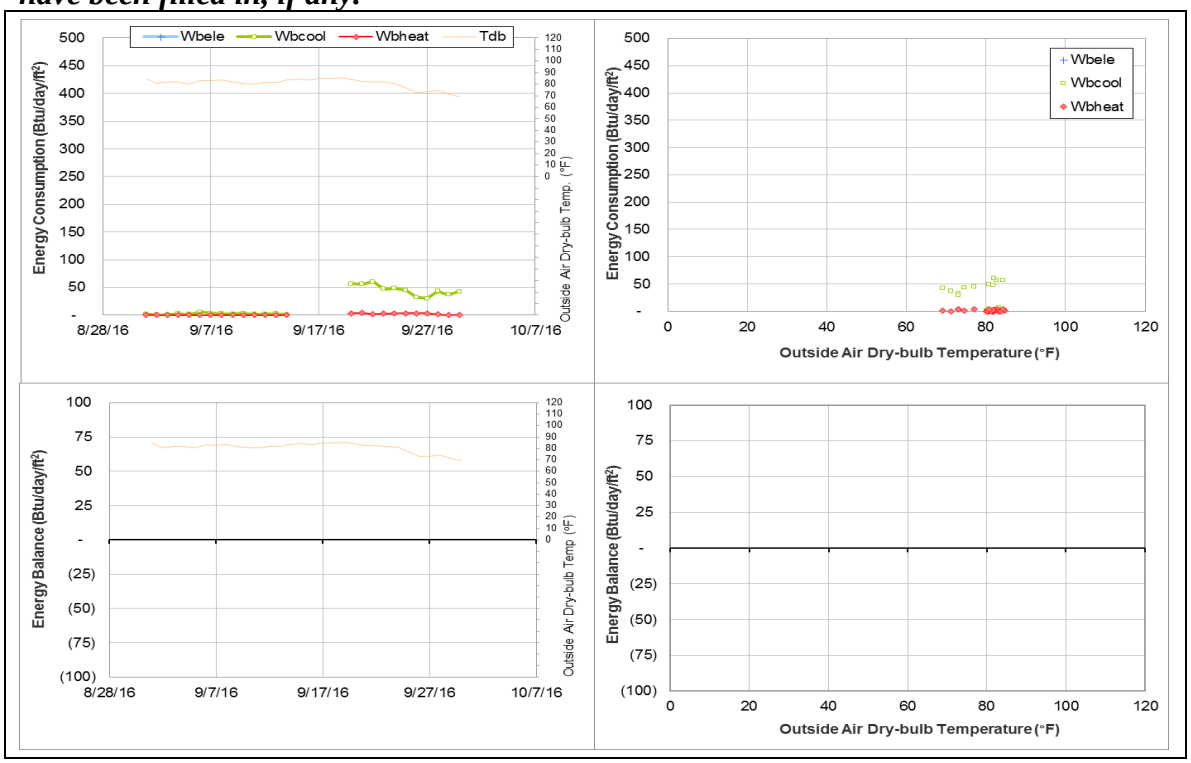
Explanatory Figure: 13 months energy balance plot with original data



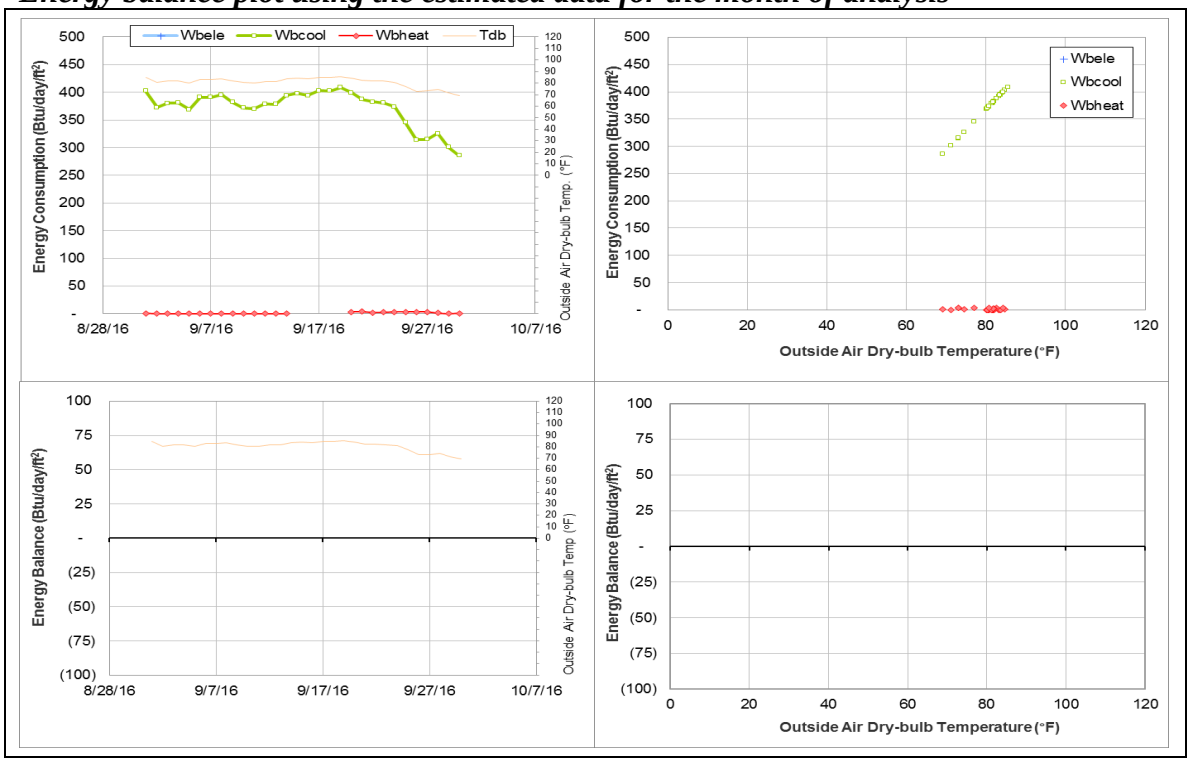
Explanatory Figure: Time series plots of hourly CHW energy consumption, flow rate, and supply and return temperatures from utilities office. (September 2016)



Energy balance plot using the original data for the month of analysis. Missing data have been filled in, if any.



Energy balance plot using the estimated data for the month of analysis



Texas Vet Med Diagnostic Lab (TAMU Bldg #1041)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	001539	28	9/1/2016 – 9/28/2016	Model

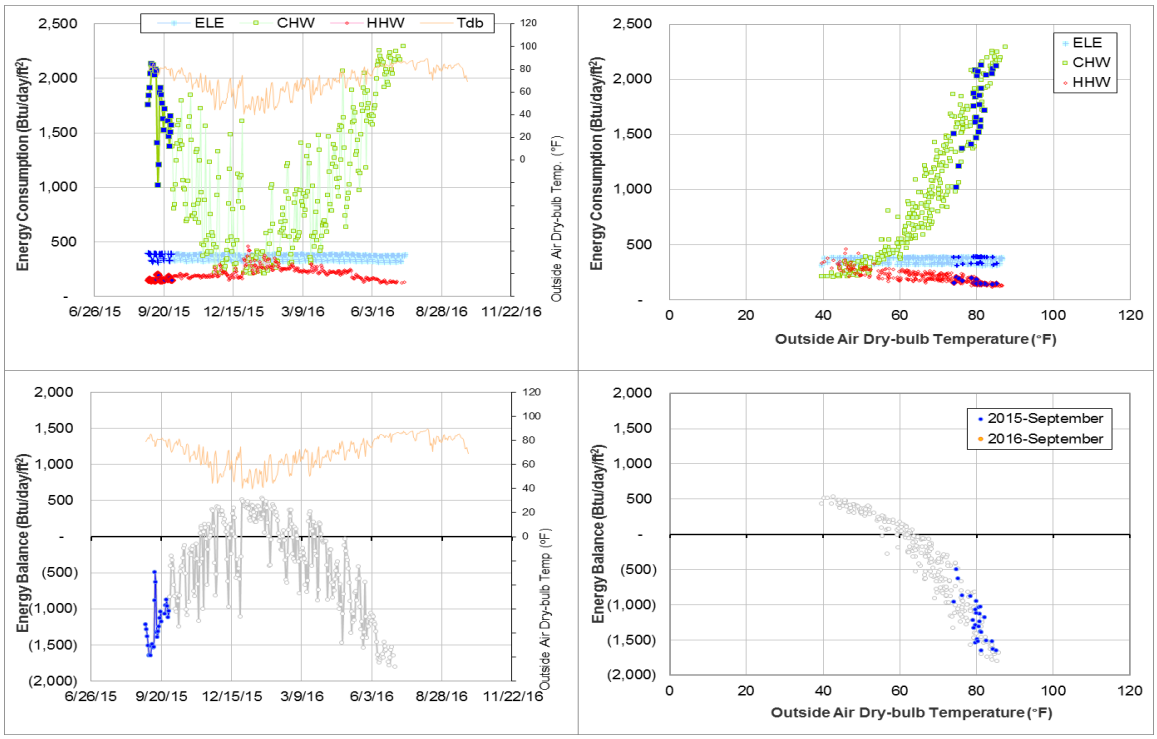
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The ELE consumption level has increased greatly.	9/1/2016 – 9/28/2016

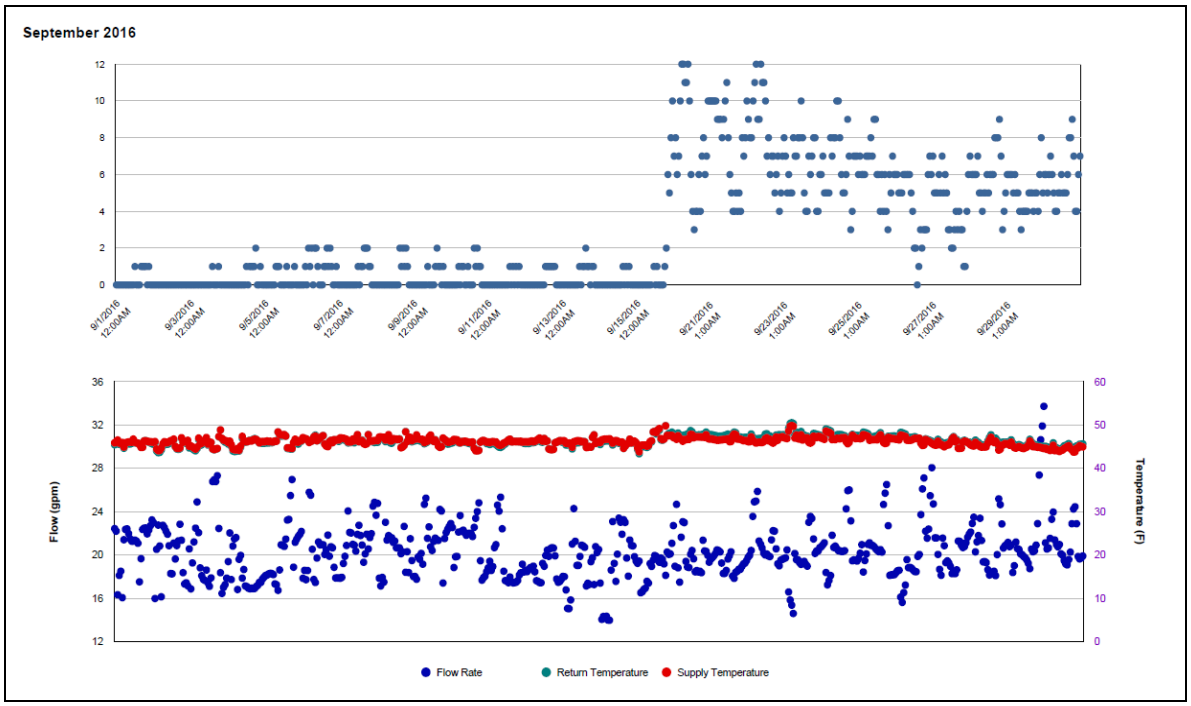
Quantitative descriptions and comments

The electricity consumption for meter #001539 during 9/1/2016 – 9/28/2016 has increased greatly, almost 1000 times greater than what is expected. This could possibly be due to a unit setting. From 9/29/2016 – 9/30/2016, the electricity consumption is missing. The below time series plot helps to illustrate the issue. Note the increase during Sep 2016 to around 2,500,000 kWh/day whereas the previous months were around 2,500 kWh/day.

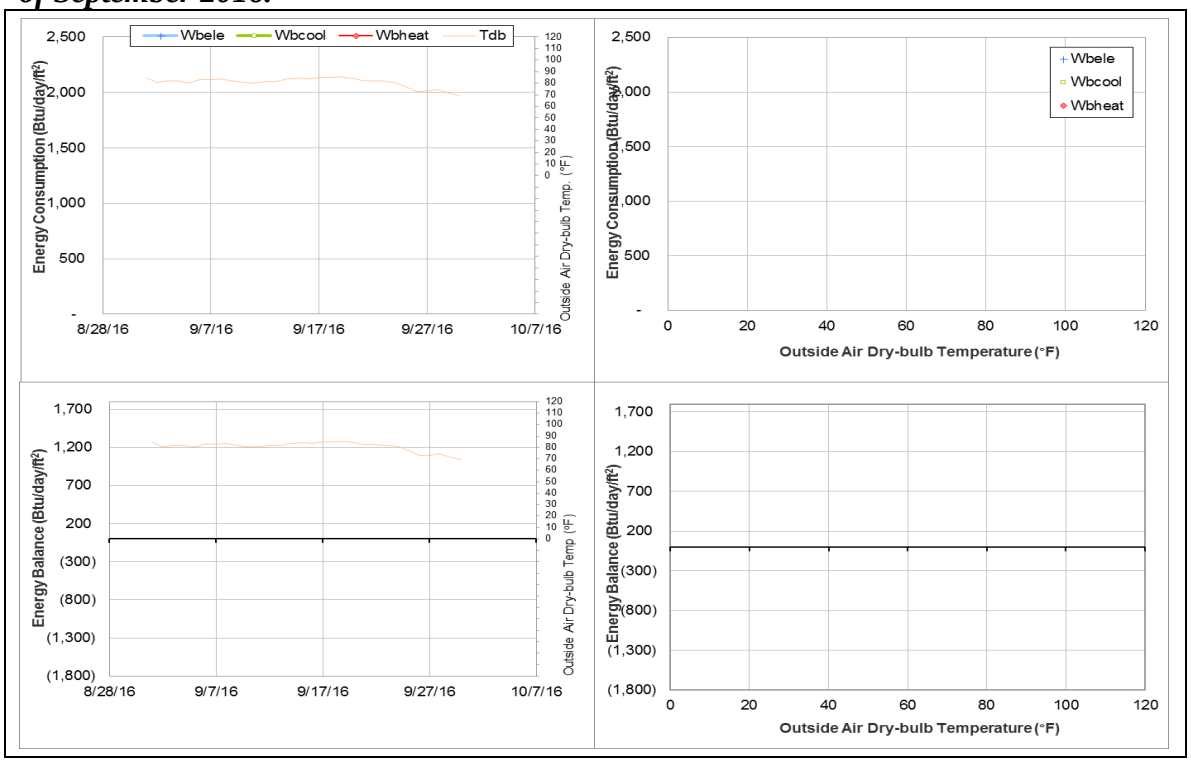
Explanatory Figure: 13 months energy balance plot with original data



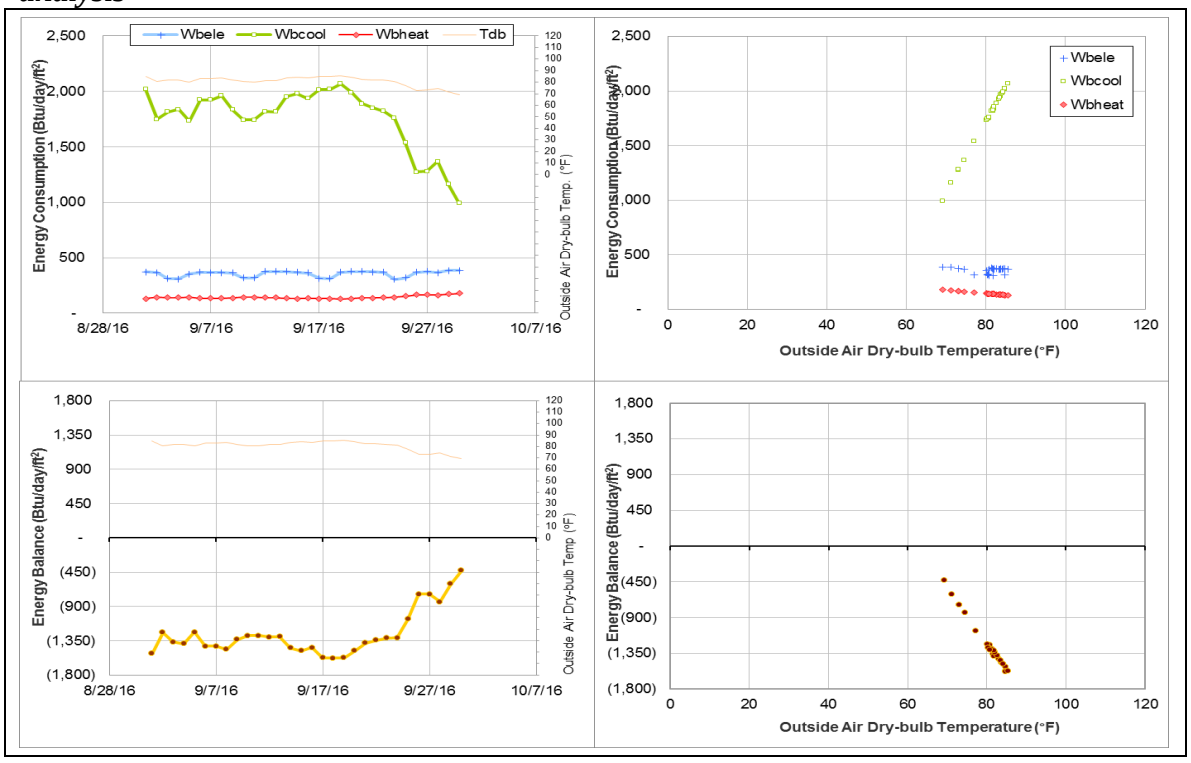
Explanatory Figure: Time series plot of daily ELE for meter #001539 from Sep 2015 through Sep 2016.



Energy balance plot using the original ELE, CHW and HHW data for the month of analysis. Note CHW, HHW, and one of the ELE meters is missing data for the month of September 2016.



Energy balance plot using the estimated ELE, CHW and HHW data for the month of analysis



Rosenthal Meat Science & Technology Center (TAMU Bldg #1505)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
HHW	002577	25	9/6/2016 – 9/30/2016	Average

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption increased.	9/6/2016 – Ongoing

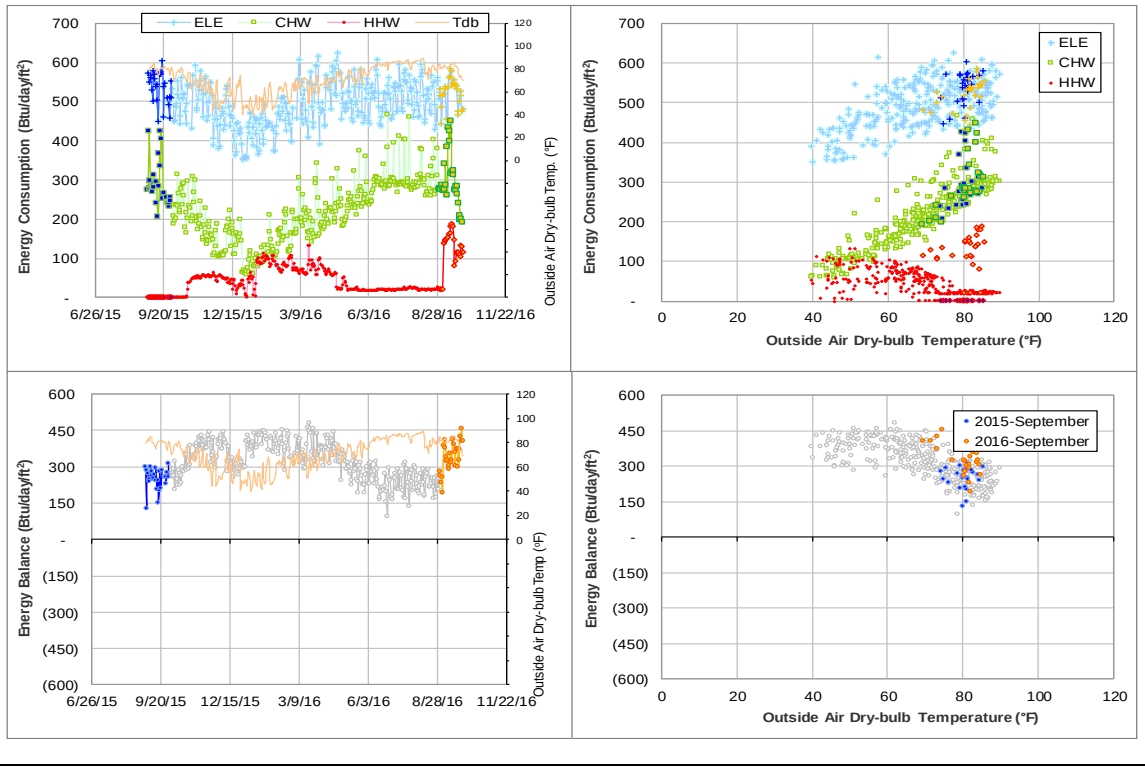
Changes in sensor readings related to the detected issues

Energy Type	Meter ID	Period	Type	Description
HHW	002577	9/6/2016 – Ongoing	Delta-T	Increased

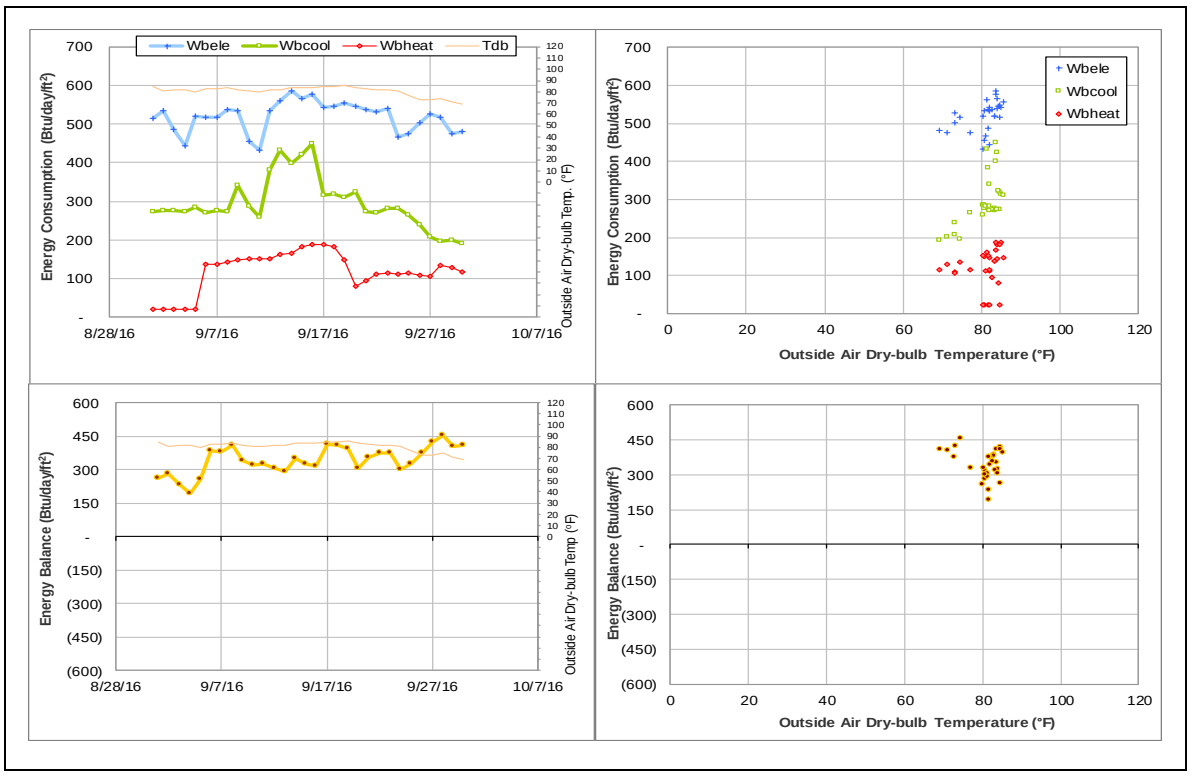
Quantitative descriptions and comments

The HHW consumption increased largely since 9/6/2016 mainly caused by a decrease of return temperature. The delta-T increased from 2-3°F to around 30°F. The consumption was estimated by an average of the data during 9/1/2016 – 9/5/2016.

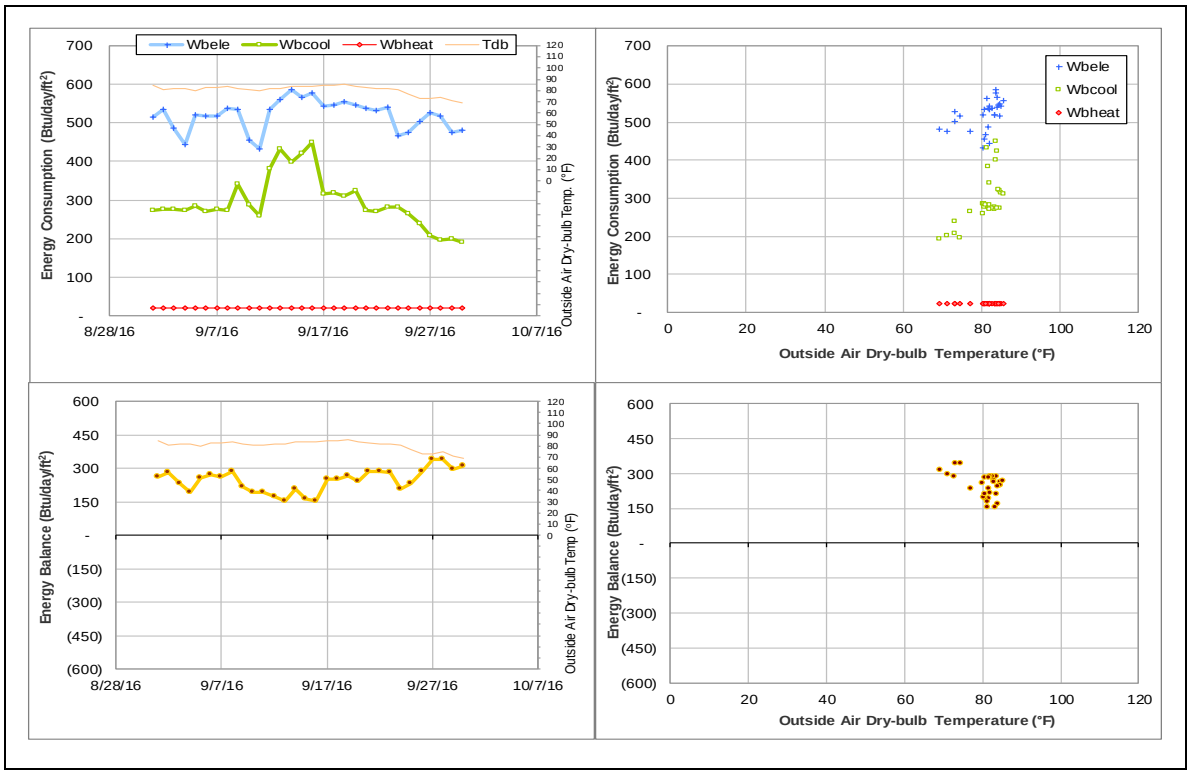
Explanatory Figure: 13 months energy balance plot with original data



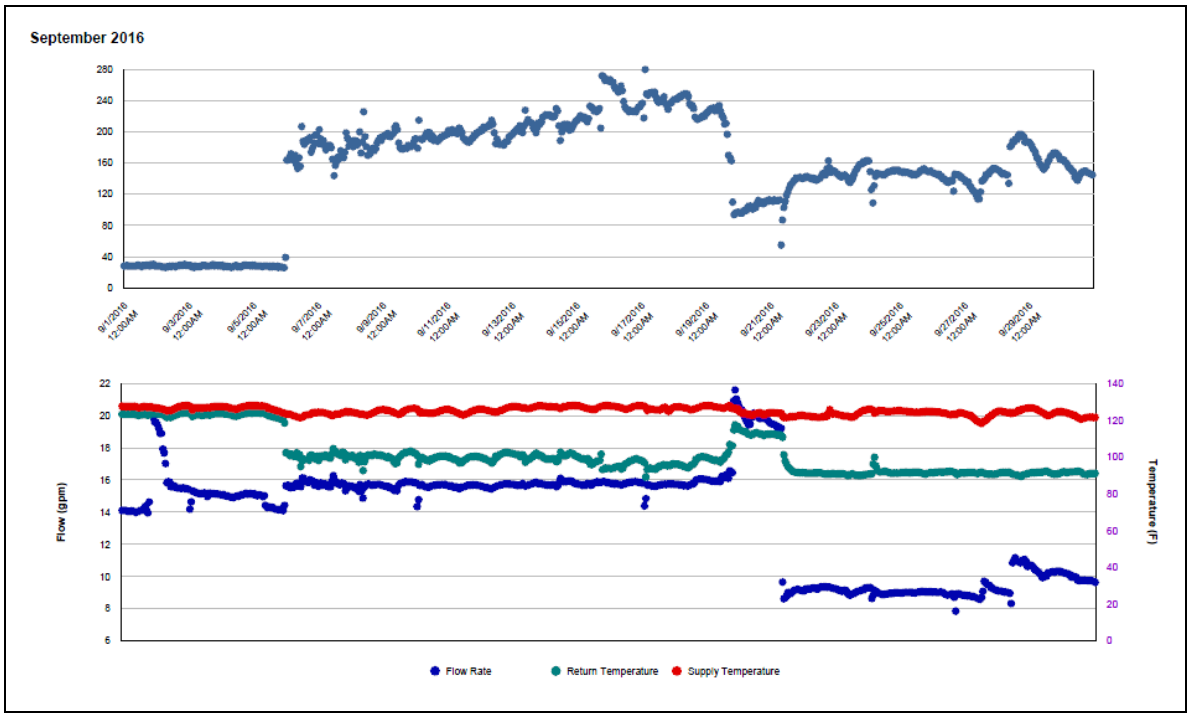
Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from utilities office. (September 2016)



Southern Crop Improvement Greenhouse (TAMU Bldg #1512)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005931	7	9/1/2016 – 9/7/2016	Model

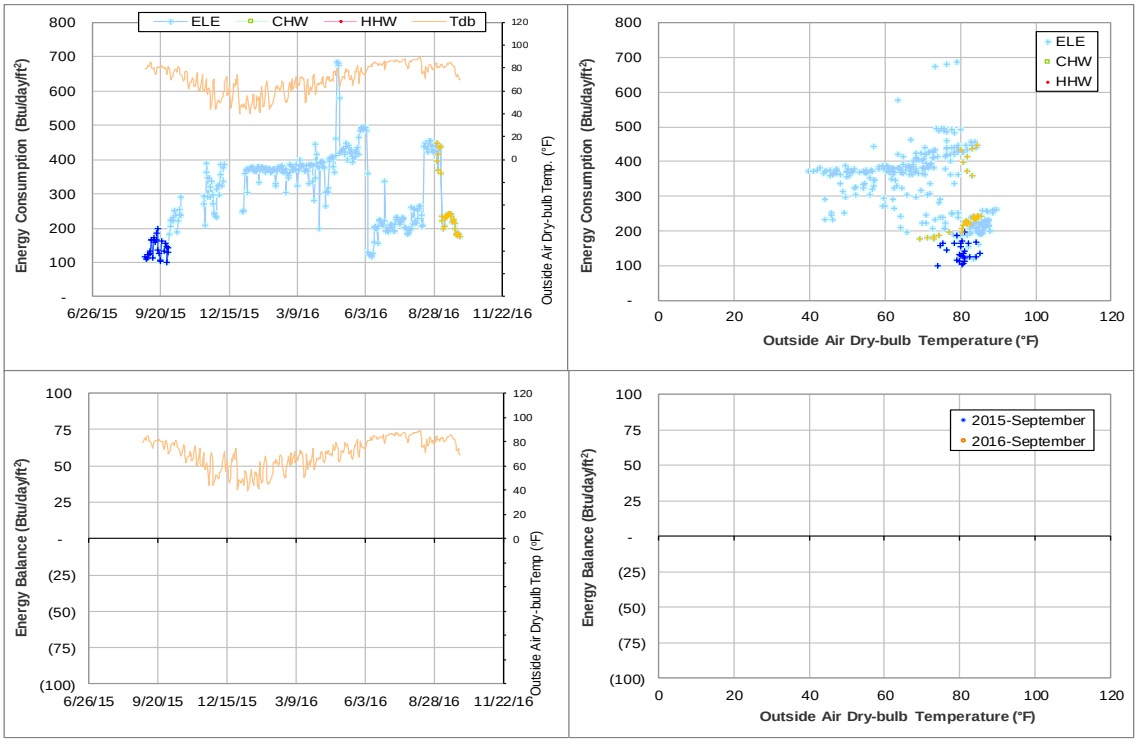
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption decreased.	7/22/2015 – 10/3/2015
	The consumption increased.	11/13/2015 – 6/6/2016 8/15/2016 – 9/7/2016

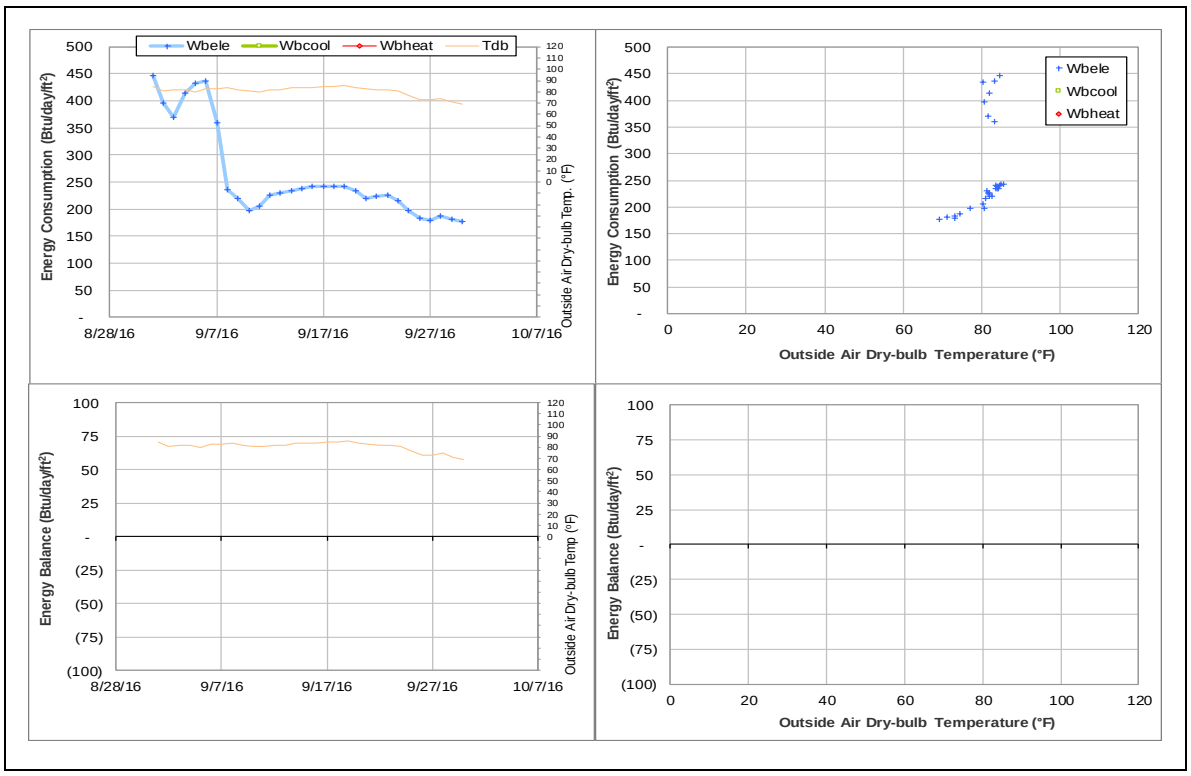
Quantitative descriptions and comments

The electricity consumption level changed frequently since July 2015. The increased consumption during 9/1/2016 – 9/7/2016 was estimated by a model based on the data during 7/1/2014 – 6/30/2015.

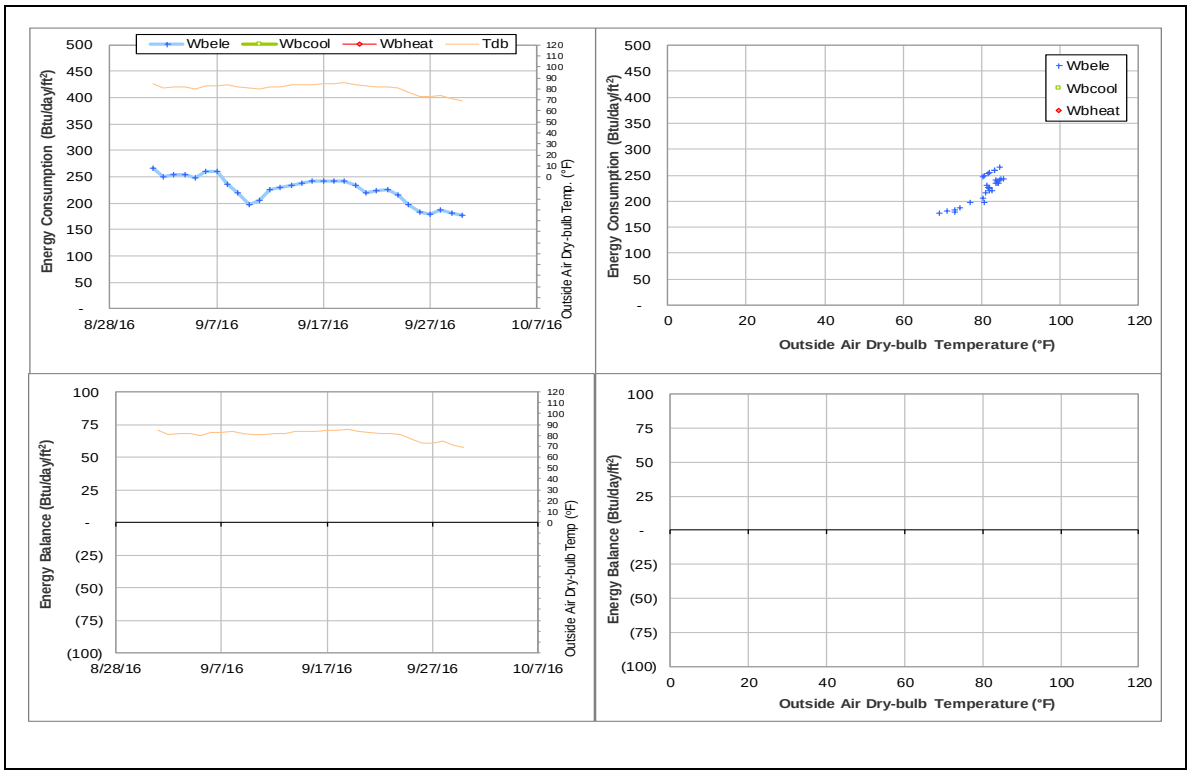
Explanatory Figure: 13 months energy balance plot with original data



Energy balance plot using the original data for the month of analysis.



Energy balance plot using the estimated data for the month of analysis



TX School of Rural Public Health (TAMU Bldg # 1518, 1519, 1520)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	005274	30	9/1/2016 – 9/30/2016	Switch with 005275
ELE	005275	30	9/1/2016 – 9/30/2016	Switch with 005274

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE (005274)	The consumption level increased largely.	8/14/2015 - ongoing
ELE (005275)	The consumption level decreased largely.	8/14/2015 - ongoing

Comments

ELE meter (ID# 005274) is serve for TX School of Rural Public Health B and ELE meter (ID# 005275) is for TX School of Rural Public Health C.

The ELE consumption levels for these two meters have a sudden change on 8/14/2015. The consumption level for meterID 005274 increased by approximate 80 kWh/h (~ 100%) and the consumption level for meter ID 005275 decreased by around 80 kWh/h (~50%).

It was observed that the cumulative reading for these two meters switched on 8/14/2015 12:00 AM. It is suggested to investigate these two meters.

Explanatory Figure: The time series plot of hourly electricity consumption for two ELE meters #005274 and# 005275

Time	Cumulative reading	Hourly Consumption	MeterID		Time	Cumulative reading	Hourly Consumption	MeterID
08/13/2015 12:00:00 PM	2930884.013	84.262	005274		08/13/2015 12:00:00 PM	4741958.002	170.658	005275
08/13/2015 01:00:00 PM	2930968.589	84.576	005274		08/13/2015 01:00:00 PM	4742132.336	174.334	005275
08/13/2015 02:00:00 PM	2931051.959	83.37	005274		08/13/2015 02:00:00 PM	4742303.554	171.218	005275
08/13/2015 03:00:00 PM	2931146.799	94.84	005274		08/13/2015 03:00:00 PM	4742483.683	180.129	005275
08/13/2015 04:00:00 PM	2931240.505	93.706	005274		08/13/2015 04:00:00 PM	4742662.753	179.07	005275
08/13/2015 05:00:00 PM	2931324.169	83.664	005274		08/13/2015 05:00:00 PM	4742832.009	169.256	005275
08/13/2015 06:00:00 PM	2931399.91	75.741	005274		08/13/2015 06:00:00 PM	4742993.53	161.521	005275
08/13/2015 07:00:00 PM	2931472.181	72.271	005274		08/13/2015 07:00:00 PM	4743149.675	156.145	005275
08/13/2015 08:00:00 PM	2931543.838	71.657	005274		08/13/2015 08:00:00 PM	4743305.9	156.225	005275
08/13/2015 09:00:00 PM	2931613.306	69.468	005274		08/13/2015 09:00:00 PM	4743462.097	156.197	005275
08/13/2015 10:00:00 PM	2931672.706	59.4	005274		08/13/2015 10:00:00 PM	4743610.221	148.124	005275
08/13/2015 11:00:00 PM	2931733.072	60.366	005274		08/13/2015 11:00:00 PM	4743745.645	135.424	005275
08/14/2015 12:00:00 AM	4743876.03	130.385	005274		08/14/2015 12:00:00 AM	2931791.19	58.118	005275
08/14/2015 01:00:00 AM	4744008.406	132.376	005274		08/14/2015 01:00:00 AM	2931849.35	58.16	005275
08/14/2015 02:00:00 AM	4744141.74	133.334	005274		08/14/2015 02:00:00 AM	2931908.534	59.184	005275
08/14/2015 03:00:00 AM	4744272.553	130.813	005274		08/14/2015 03:00:00 AM	2931966.686	58.152	005275
08/14/2015 04:00:00 AM	4744404.045	131.492	005274		08/14/2015 04:00:00 AM	2932023.589	56.903	005275
08/14/2015 05:00:00 AM	4744534.38	130.335	005274		08/14/2015 05:00:00 AM	2932080.05	56.461	005275
08/14/2015 06:00:00 AM	4744667.111	132.731	005274		08/14/2015 06:00:00 AM	2932137.05	57	005275
08/14/2015 07:00:00 AM	4744820.038	152.927	005274		08/14/2015 07:00:00 AM	2932232.983	95.933	005275
08/14/2015 08:00:00 AM	4744972.221	152.183	005274		08/14/2015 08:00:00 AM	2932319.162	86.179	005275
08/14/2015 09:00:00 AM	4745134.467	162.246	005274		08/14/2015 09:00:00 AM	2932404.691	85.529	005275
08/14/2015 10:00:00 AM	4745308.905	174.438	005274		08/14/2015 10:00:00 AM	2932489.976	85.285	005275
08/14/2015 11:00:00 AM	4745476.832	167.927	005274		08/14/2015 11:00:00 AM	2932564.419	74.443	005275
08/14/2015 12:00:00 PM	4745634.44	157.608	005274		08/14/2015 12:00:00 PM	2932634.064	69.645	005275
08/14/2015 01:00:00 PM	4745789.345	154.905	005274		08/14/2015 01:00:00 PM	2932704.723	70.659	005275
08/14/2015 02:00:00 PM	4745949.369	160.024	005274		08/14/2015 02:00:00 PM	2932777.373	72.65	005275
08/14/2015 03:00:00 PM	4746110.346	160.977	005274		08/14/2015 03:00:00 PM	2932845.908	68.535	005275
08/14/2015 04:00:00 PM	4746270.903	160.557	005274		08/14/2015 04:00:00 PM	2932920.525	74.617	005275
08/14/2015 05:00:00 PM	4746431.347	160.444	005274		08/14/2015 05:00:00 PM	2932996.835	76.31	005275
08/14/2015 06:00:00 PM	4746586.415	155.068	005274		08/14/2015 06:00:00 PM	2933065.518	68.683	005275
08/14/2015 07:00:00 PM	4746727.476	141.061	005274		08/14/2015 07:00:00 PM	2933127.559	62.041	005275
08/14/2015 08:00:00 PM	4746864.372	136.896	005274		08/14/2015 08:00:00 PM	2933195.384	67.825	005275
08/14/2015 09:00:00 PM	4747004.372	140	005274		08/14/2015 09:00:00 PM	2933263.632	68.248	005275
08/14/2015 10:00:00 PM	4747137.886	133.514	005274		08/14/2015 10:00:00 PM	2933323.26	59.628	005275
08/14/2015 11:00:00 PM	4747269.569	131.683	005274		08/14/2015 11:00:00 PM	2933382.3	59.04	005275

Reed Arena (TAMU Bldg #1554)

Estimated data

Energy Type	Meter ID	Number of Days	Period	Estimation Method
ELE	006243	30	9/1/2016 – 9/30/2016	Model

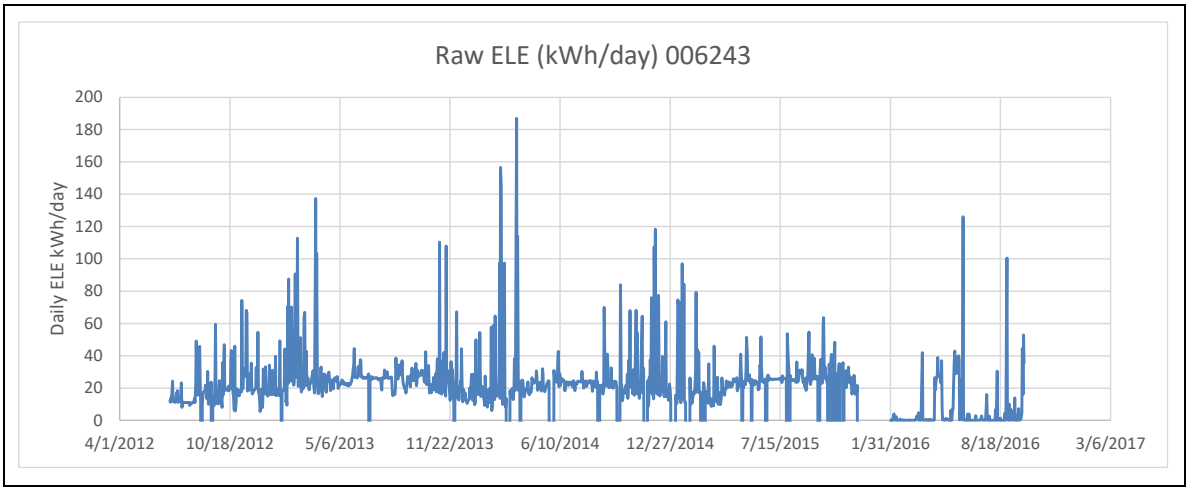
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption decreased largely.	2/1/2016-3/28/2016 3/30/2016-4/19/2016 5/4/2016-5/24/2016 6/5/2016-onging

Quantitative descriptions and comments

There are three ELE meters for this building. The consumption for one of them (ELE MID 006243) only counts for around 0.3% of total ELE consumption for this building. The consumption for ELE MID 006243 decreased to nearly zero since 2/1/2016. It increased back on 3/28/2016, but decreased to nearly zero frequently for most time after April 2016. However, it doesn't affect the energy balance. The problematic consumption was estimated by a model based on the data during 1/1/2015 – 12/31/2015.

Explanatory Figure: Time series plot for ELE meter 006243



II-3 Meters with Significant Issues in Energy Consumption Data

In this section, significant issues in the data behavior are described. On the contrary to the section II–2, alternative consumption is not estimated for some reasons: presence of continuous problems since the beginning of the data acquisition, unbalanced energy uses in the past data, changes in the consumption patterns without evidence of data problems, etc. Table II–3 gives a list of meters included in this section.

Table II-3 Meters with significant issues in the consumption data during September 2016

Building No.	Building Name	MeterID	Type
0290	Wells Residence Hall		
		001984	CHW
		001988	HHW
0291	Rudder Residence Hall		
		002132	CHW
		002136	HHW
0293	Appelt Residence Hall		
		002062	CHW
		002066	HHW
0353	Bright Aerospace Building		
		002746	CHW
		002757	HHW
0358	Davis Football Player Development Center		
		007701	CHW
0383	Koldus Building		
		002863	CHW
		002874	HHW
0387	Richardson Petroleum Engineering Building		
		005809	HHW
0394	Underwood Residence Hall		
		000014	ELE
		002117	CHW
		002121	HHW
0412	Moses Residence Hall		
		002384	CHW
0419	Legett Residence Hall		
		000031	ELE
		002218	CHW
		002222	HHW
0425	Henderson Hall		
		002607	CHW
0433	Mosher Residence Hall		
		009083	ELE
		002485	CHW
		002489	HHW
0440	Commons Hall		
		009238	HHW
0446	Rudder Theatre Complex		
		004297	CHW
		004309	HHW
0462	Academic Building		
		005909	HHW
0467	Biological Sciences Building - East		
		003851	CHW
		003862	HHW
0473	Williams Administration Building		
		007946	CHW
		007947	HHW
0478	Scoates Hall		
		007961	ELE
		007968	CHW
		007969	HHW
0482	Fermier Hall		
		005878	CHW
		005881	HHW
0492	Civil Engineering Building		
		005950	CHW
		005954	HHW
0496	Utilities & Energy Services Central Office		
		007706	ELE
		006929	CHW
		006933	HHW
0499	Engineering Innovation Center		
		002672	CHW
		002683	HHW
0506	Nagle Hall		
		001484	ELE
		003619	CHW
		003623	HHW
520	Beutel Health Center		
		003785	ELE
524	Blocker building		
		002918	HHW
880	TVMC-Small Animal Building		
		005962	HHW
1026	Veterinary Medicine Administration		
		006053	HHW
1146	Biological Control Facility		
		005795	ELE
1156	Physical Plant Administration & Shops		
		007679	CHW
1197	Veterinary Research Building		
		006355	ELE
		006359	ELE
1501	Kleberg Center		
		002624	CHW
1601	International Ocean Discovery Building		
		006351	ELE
		006382	CHW
		008144	CHW
		008145	HHW
1604	Offshore Technology Research Center		
		006660	ELE
		008142	CHW
		008143	HHW

Wells Residence Hall (TAMU Bldg #290)

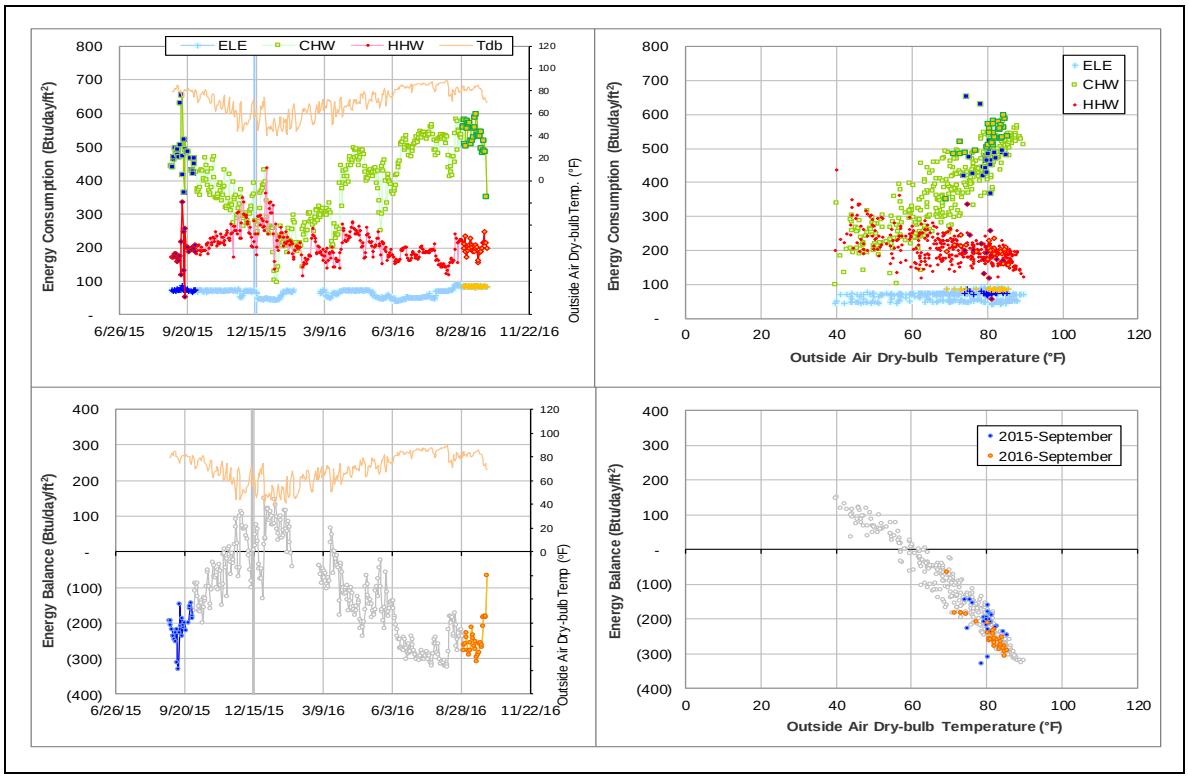
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	Both the CHW and HHW consumption levels are higher than the same month of last year.	Since April 2016

Comments

Both the CHW and HHW consumption increased since the month of April 2016. The CHW/HHW consumption of this month was about 100 Btu/day/ft^2 higher than the same month of last year. This building has a low level of energy balance load with the cross-point temperature around 60°F. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Rudder Residence Hall (TAMU Bldg #291)

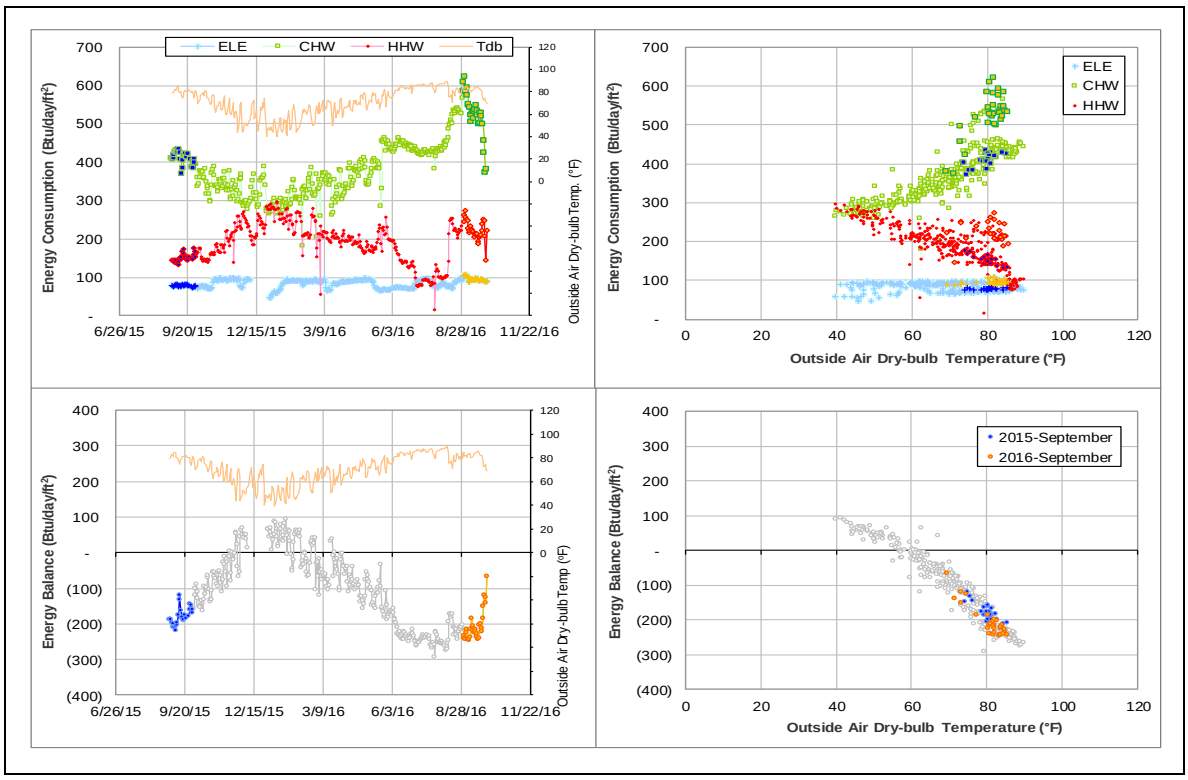
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level is low. The cross-point temperature is around 60°F.	For several years

Comments

This building has a low level of energy balance load with the cross-point temperature around 60°F for years. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause. See also section II-2.

Explanatory Figure: 13 months energy balance plot with original data



Appelt Residence Hall (TAMU Bldg #293)

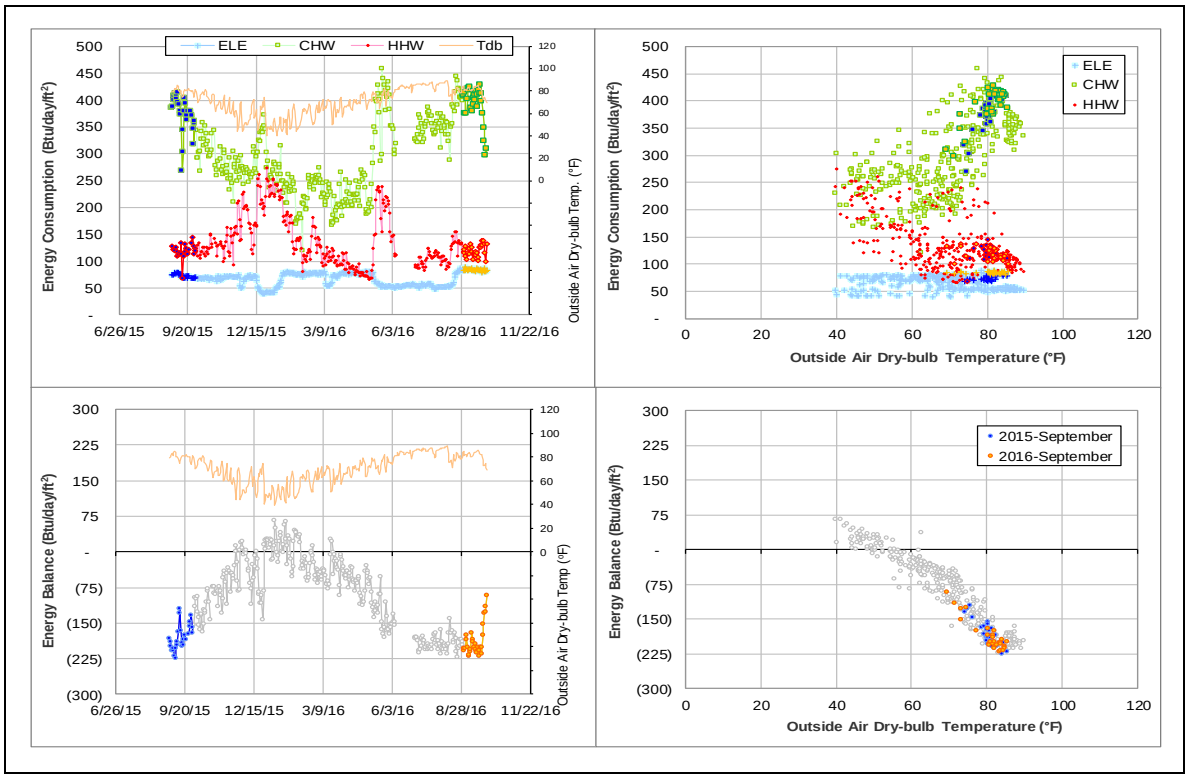
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level suddenly decreased.	Since December 2014
HHW	The consumption gradually decreased.	Since January 2015
Energy Balance	The energy balance decreased and the cross-point temperature is around 55°F.	Since January 2015

Comments

Both the CHW and HHW consumption levels have decreased, respectively. As a result, the energy balance load was low with the cross-point temperature around 55°F. The low E_{BL} level suggests imbalance of metered energy use in the building, but we are not able to determine the cause.

Explanatory Figure: 13 months energy balance plot with original data



Bright Building (TAMU Bldg #353)

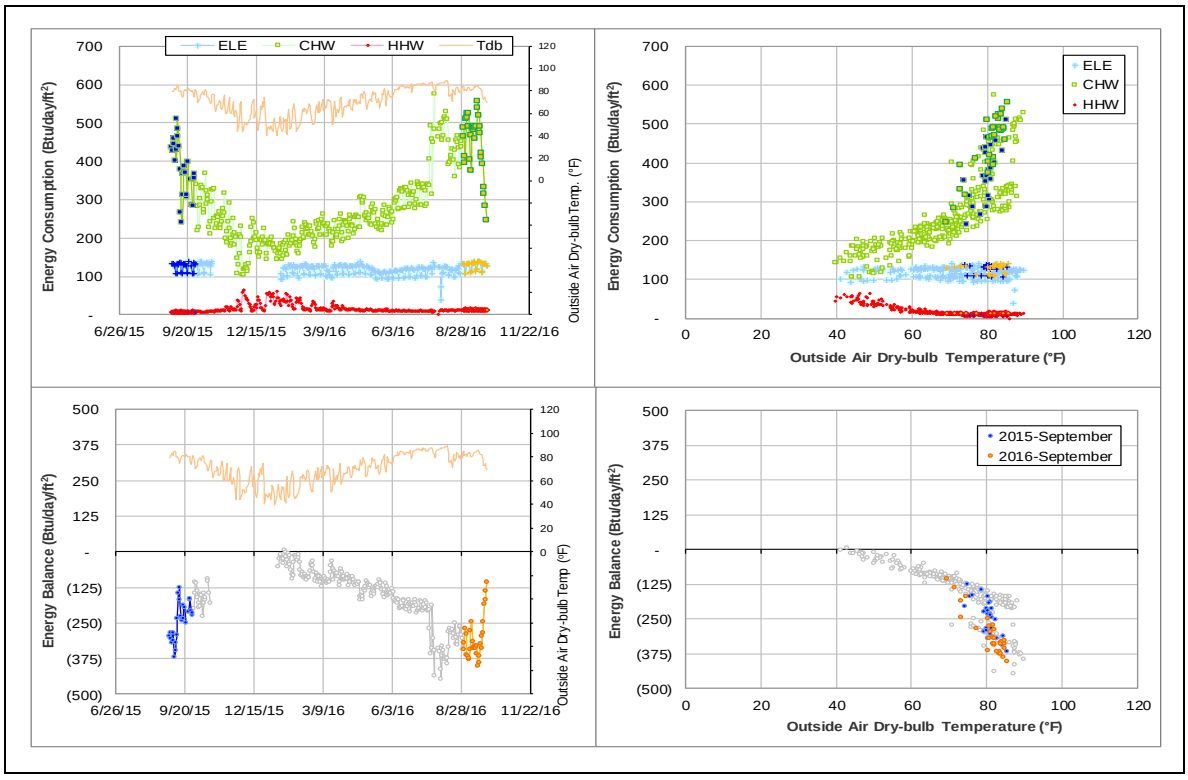
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The energy balance level has been low for years. The cross-point temperature was in the range of 40 - 70 °F.	For several years

Comments

The energy balance load (E_{BL}) of this building has varied but always been low (the cross-point temperature was between 40°F and 70°F) for years. In the past 12 months, the cross-point temperature was around 50°F. CHW consumption increased greatly on 7/21/2016 and the cross-point temperature of energy balance could shift to more reasonable range. More data will be needed to verify the trend.

Explanatory Figure: 13 months energy balance plot with original data



Davis Football Player Development Center (TAMU Bldg #358)

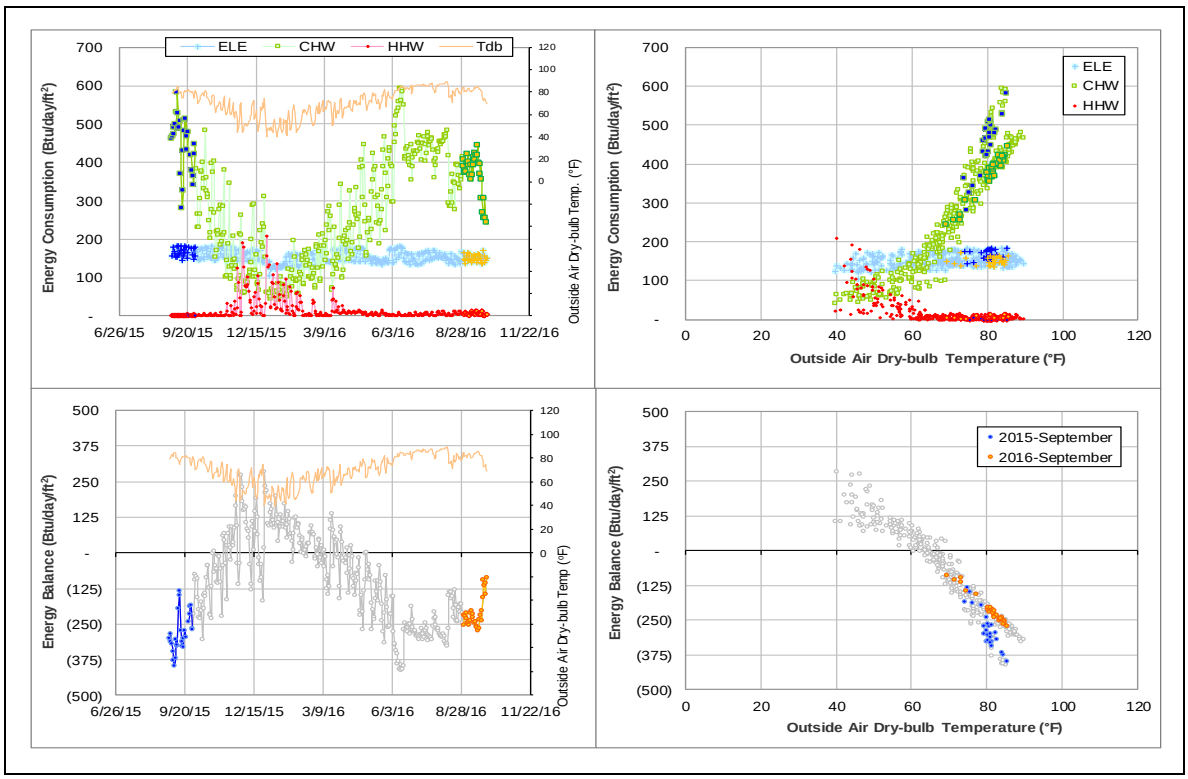
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Decreased	6/18/2016 - ongoing

Comments

CHW has been decreasing since 6/18/2016, and decreased further since 8/13/2016. EB is affected and pulled up. However, the energy balance is still in the reasonable range.

Explanatory Figure: 13 months energy balance plot with original data



Koldus Building (TAMU BLDG # 383)

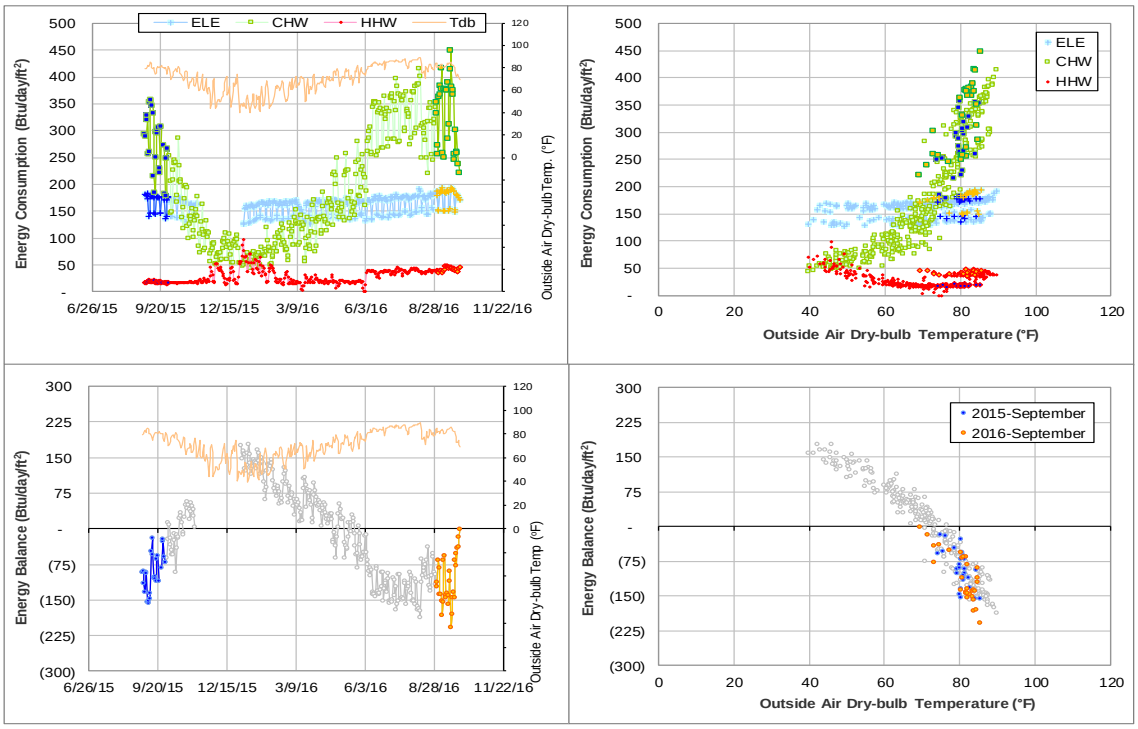
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption suddenly increased.	Since early of June 2016

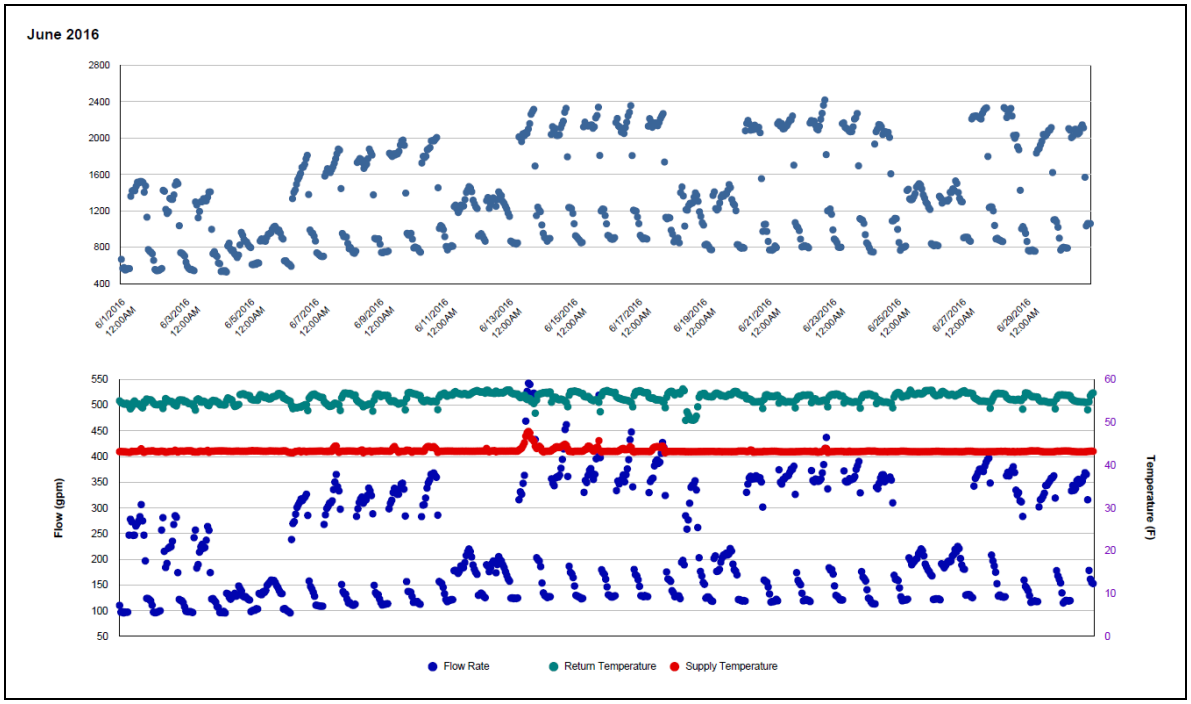
Comments

There CHW and HHW consumption both increased since early June 2016. CHW consumption was about 50 Btu/day/ft^2 higher the same period of last year, as the return temperature and the flow rate both increased a little since 6/5/2016. The consumption level seem to have returned on 8/12/2016. Around the same time, HHW consumption was about 20 Btu/day/ft^2 higher comparing to the past year, because the flow rate increased and the return temperature decreased. However, the energy balance didn't change much.

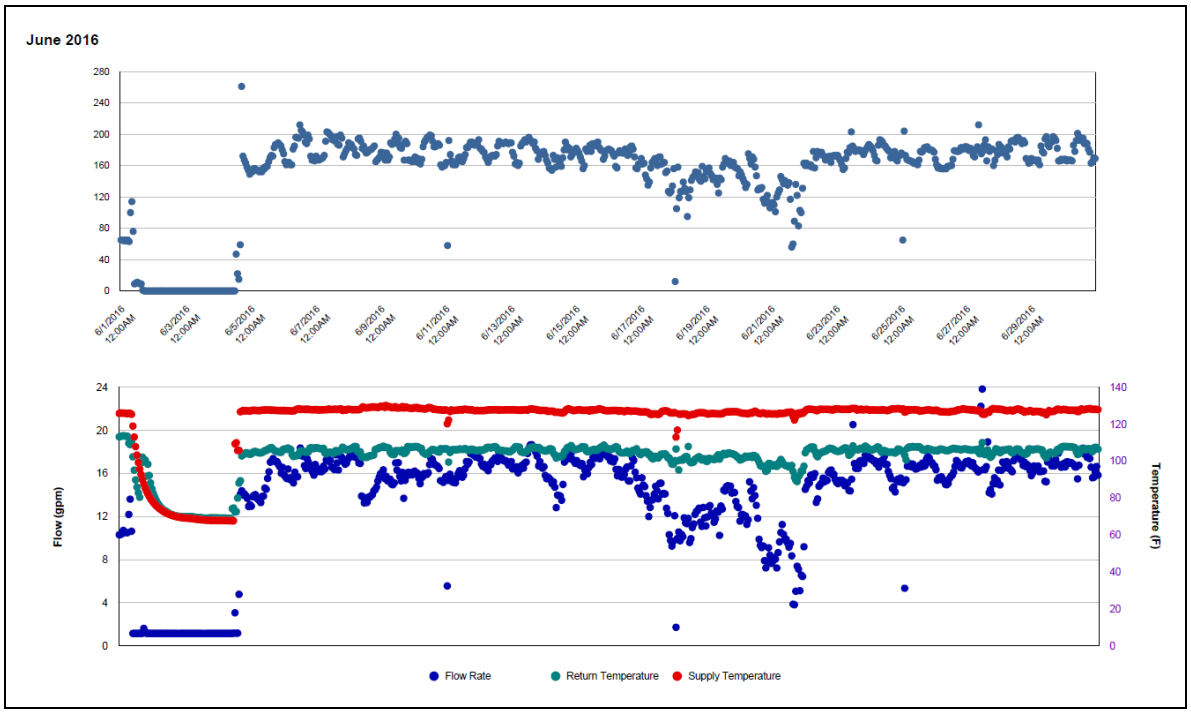
Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (CHW during June 2016)



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during June 2016)



Richardson Petroleum Engineering Building (TAMU Bldg #387)

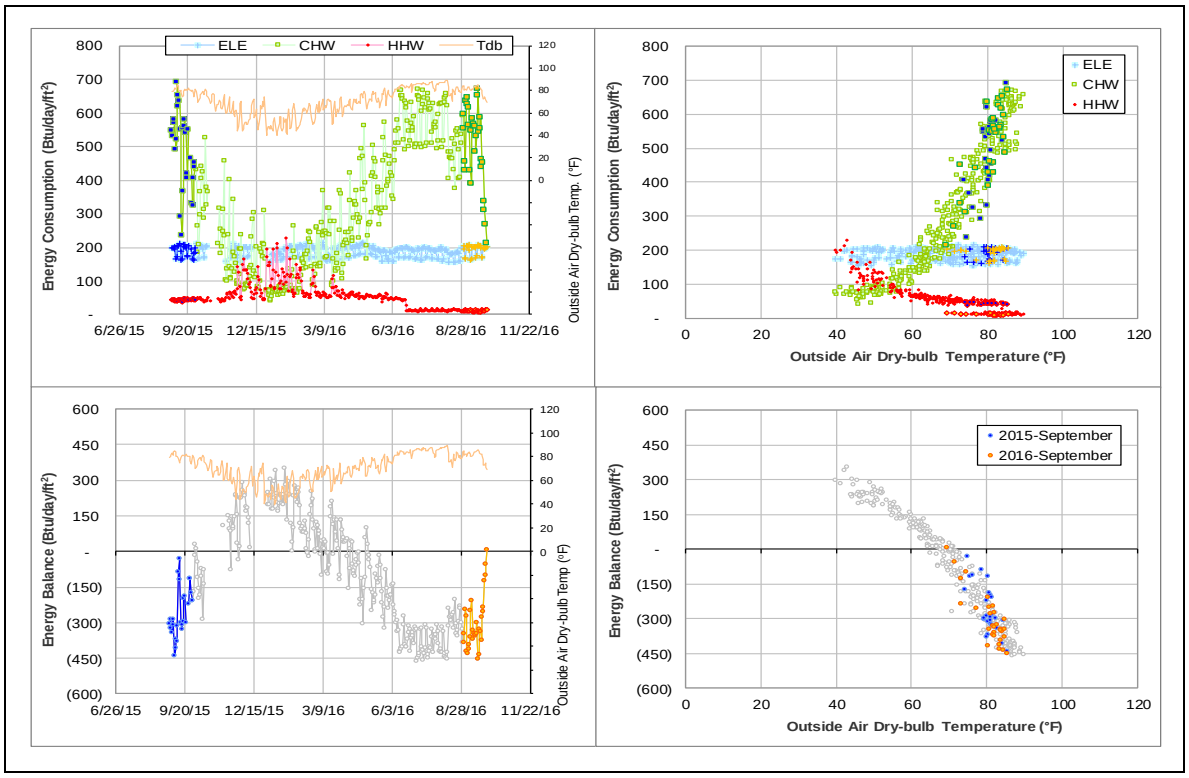
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	Decreased	6/21/2016 - ongoing

Quantitative descriptions and comments

The HHW consumption suddenly decreased by 30 Btu/day/ft^2 since 6/21/2016, as the HHW return temperature increased and the delta T decreased to be very small. Since the difference is fairly small and a new pattern seems to be forming, the consumption is not estimated.

Explanatory Figure: 13 months energy balance plot with original data



Underwood Hall (TAMU BLDG # 394)

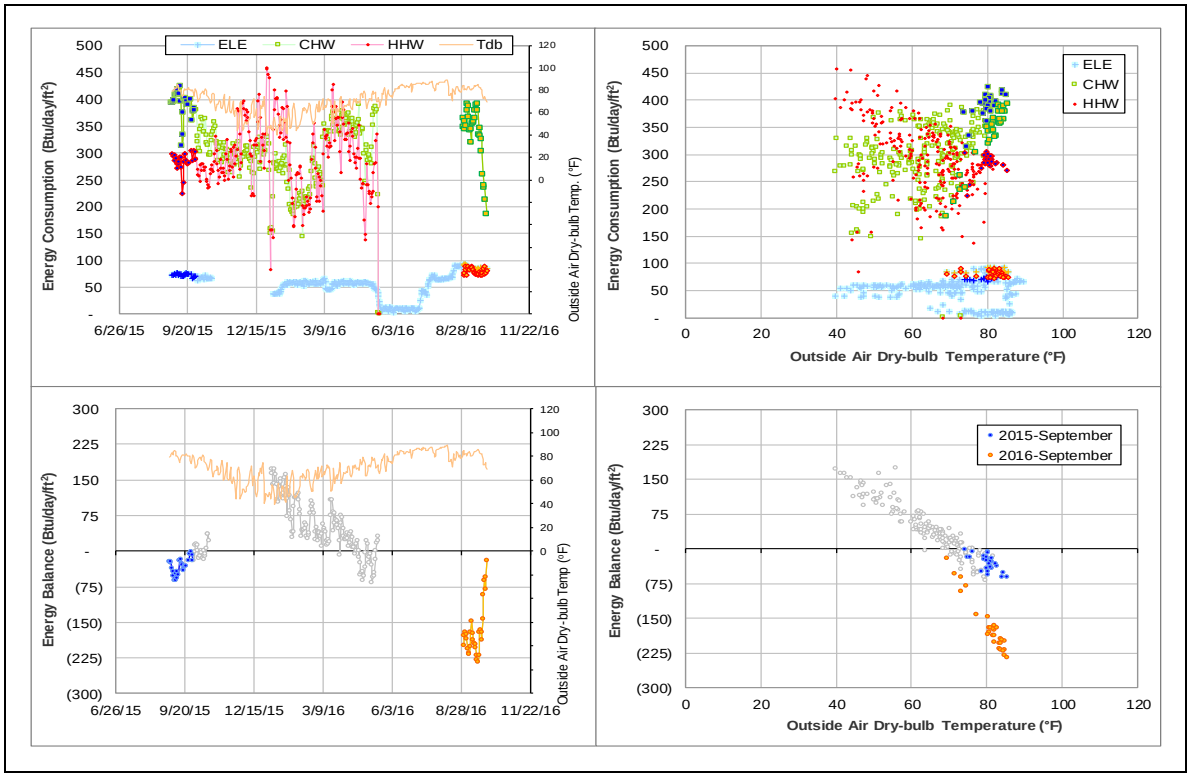
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption decreased largely.	9/1/2016 - Ongoing

Comments

This building had HVAC renovation this summer and is operating with new control since this month. HHW consumption level in September is much lower than the level of last year. CHW also show a decrease in low temperature ranges. The decrease in CHW and HHW could be related with the renovation.

Explanatory Figure: 13 months energy balance plot with original data



Moses Residence Hall (TAMU BLDG # 412)

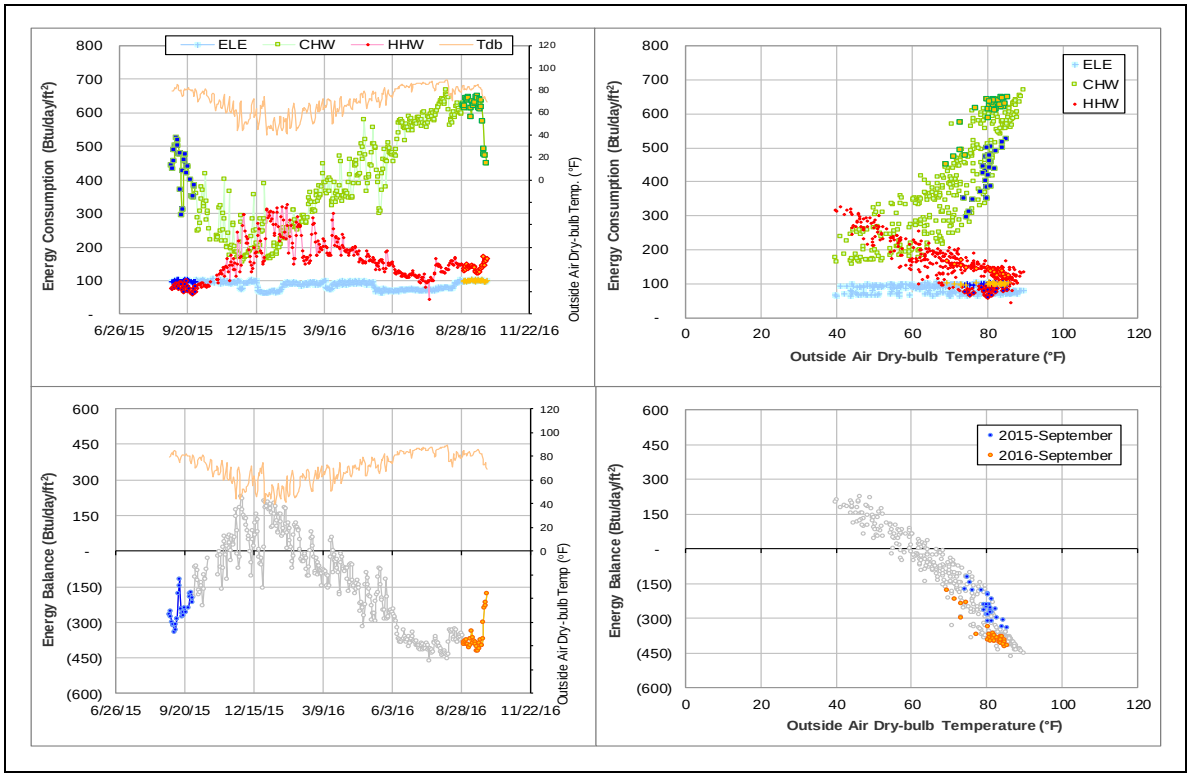
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption level was higher than the same month of last year.	Since March 2016
Energy Balance	The energy balance decreased and the cross-point temperature was around 60°F.	Since March 2016

Comments

The CHW consumption was higher (about 100 Btu/day/ft^2 higher for September) than the same month of the last year since March 2016, which resulted the lower energy balance with the cross-point temperature decreased from 65°F to 60°F.

Explanatory Figure: 13 months energy balance plot with original data



Legett Residence Hall (TAMU BLDG # 419)

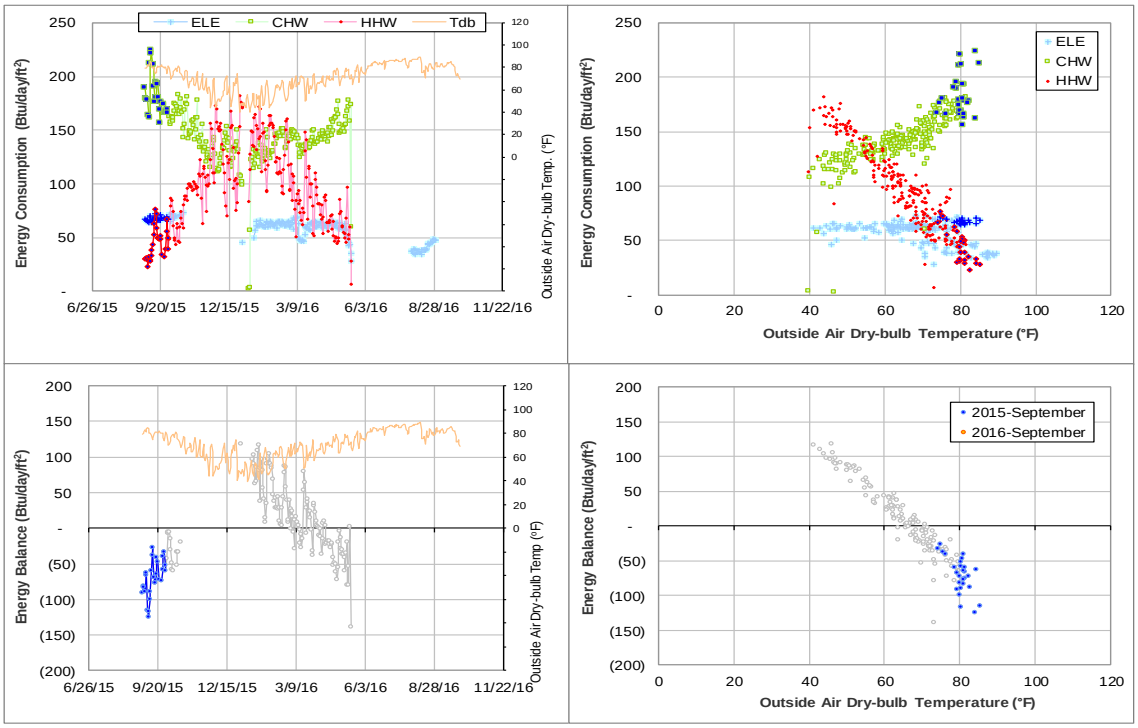
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
All Utilities	A decrease is expected after the renovation of this building, but data are not yet available.	Since 09/2016

Comments

The renovation of this building is finished in 9/2016 and a decrease is expected. But data of all utilities are not yet available. ELE consumption of the current month are filled in by taking average of 8/2016 which are the most recent available data. CHW and HHW consumptions are still estimated by the previous model before renovation which could be overestimated.

Explanatory Figure: 13 months energy balance plot with original data



Henderson Hall (TAMU BLDG # 425)

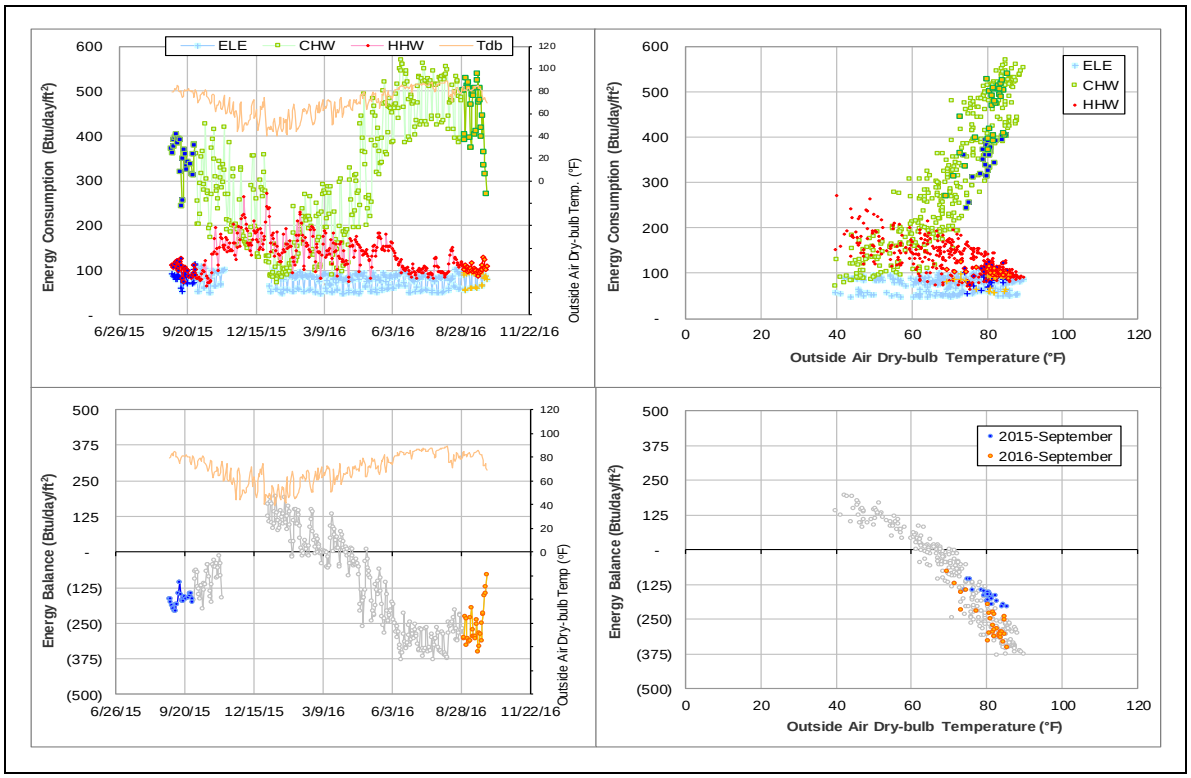
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The consumption increased.	4/25/2016 – ongoing

Comments

CHW consumption has been high since 4/25/2016, and the energy balance is pulled down slightly.

Explanatory Figure: 13 months energy balance plot with original data



Mosher Residence Hall (TAMU BLDG # 433)

Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption level suddenly decreased.	Since 1/23/2016
ELE	The consumption gradually decreased.	Since middle of May 2016
HHW	The consumption gradually increased.	Since middle of May 2016
Energy Balance	The cross-point temperature is low, around 50°F	Since March 2015

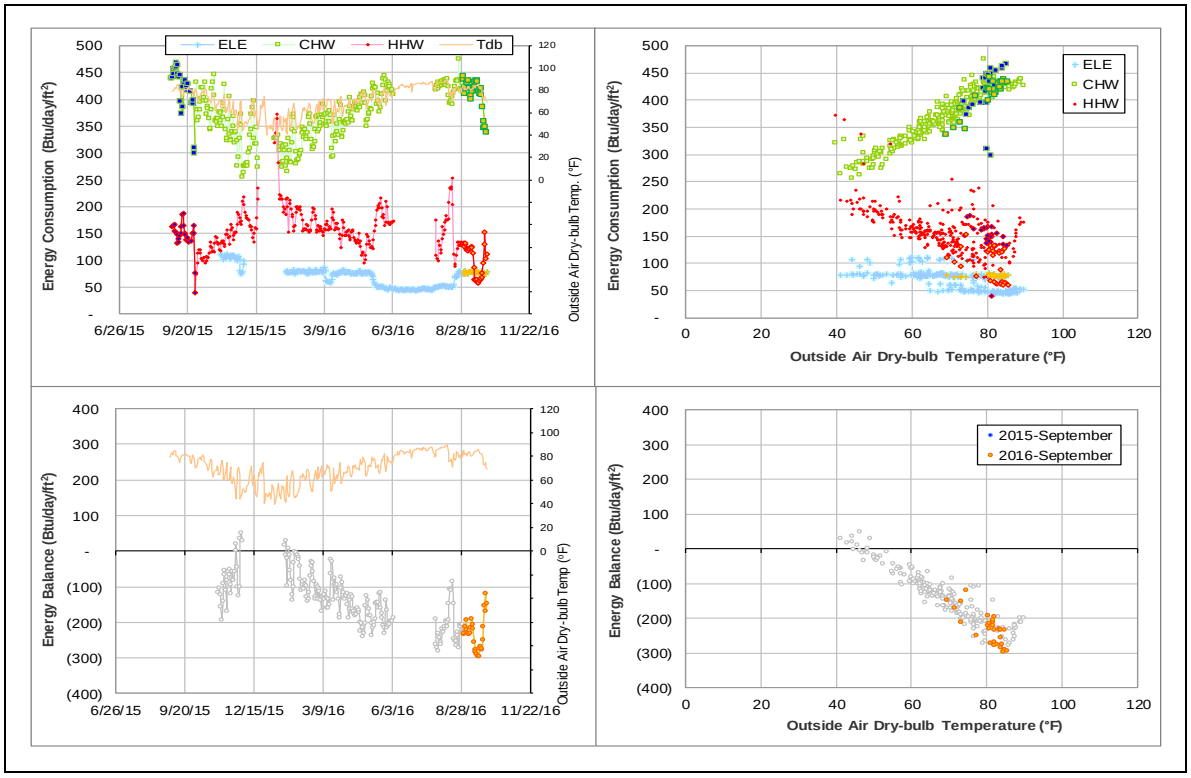
Comments

The cross-point temperature for this building was around 55°F before March 2015. CHW consumption increased 50- 100 Btu/day/ft^2 due to an increase of flow rate after March 2015 and the pattern was stable over one year. As a result, the cross-point temperature decreased from ~ 55°F to ~50°F.

The ELE meter (MID 009083) replaced old meter (MID 000290) since January 2016. After that, the consumption decreased from ~105 Btu/day/ft^2 to ~80 Btu/day/ft^2 (approximately 25%). The CHW and HHW consumption levels didn't changed. The cross-point temperature was further decreased and it is lower than 50°F now. It is suggested to investigate this meter.

In the middle of May 2016, the ELE further decreased to 50 Btu/day/ft^2 and the HHW consumption increased by 50 Btu/day/ft^2. However, the energy balance pattern didn't change.

Explanatory Figure: 13 months energy balance plot with original data



Commons Hall (TAMU BLDG # 440)

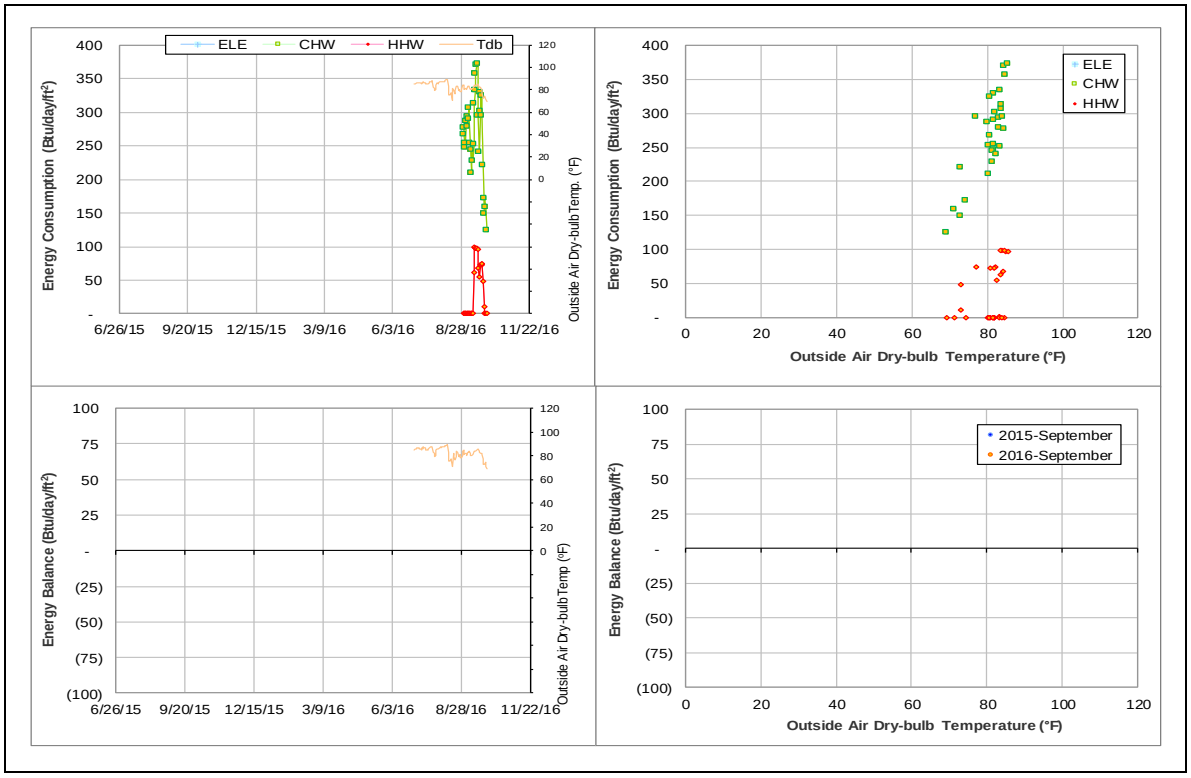
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	New MID	Timestamp starting 7/1/2016

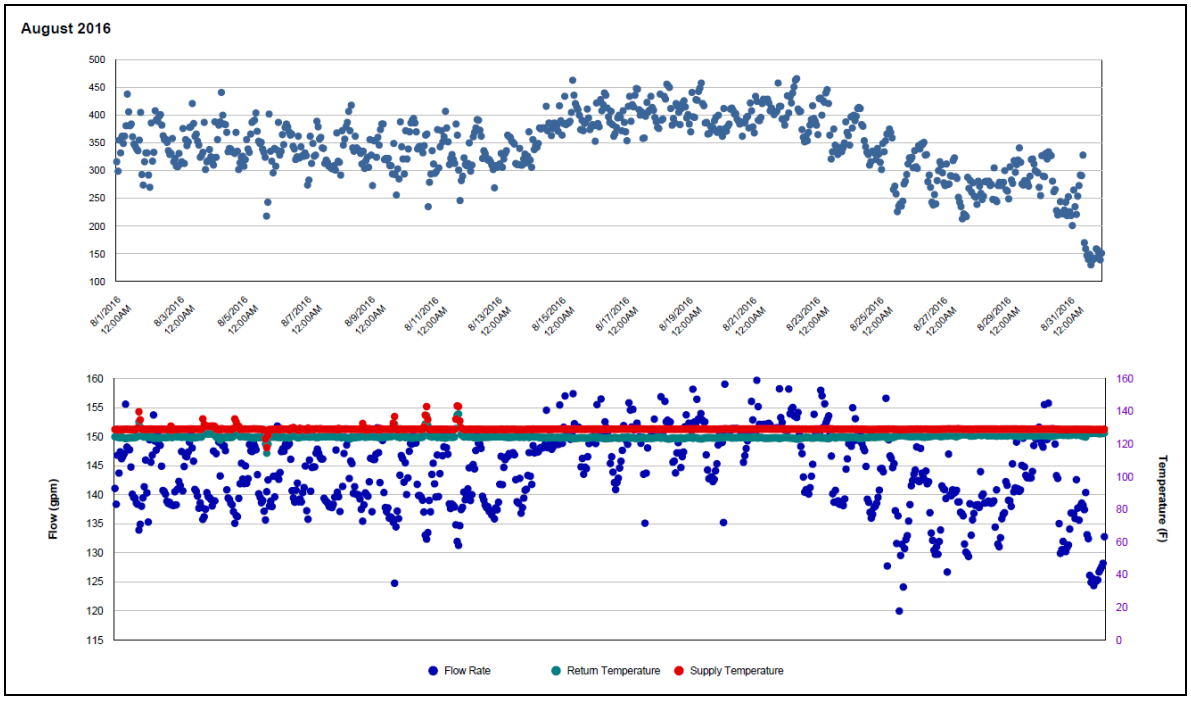
Comments

CHW 009237 and HHW 009238 are new MID's with timestamp starting 7/1/2016. Earliest data received started on 9/1/2016. HHW of this building does not seem to form a stable pattern but it is not yet estimated.

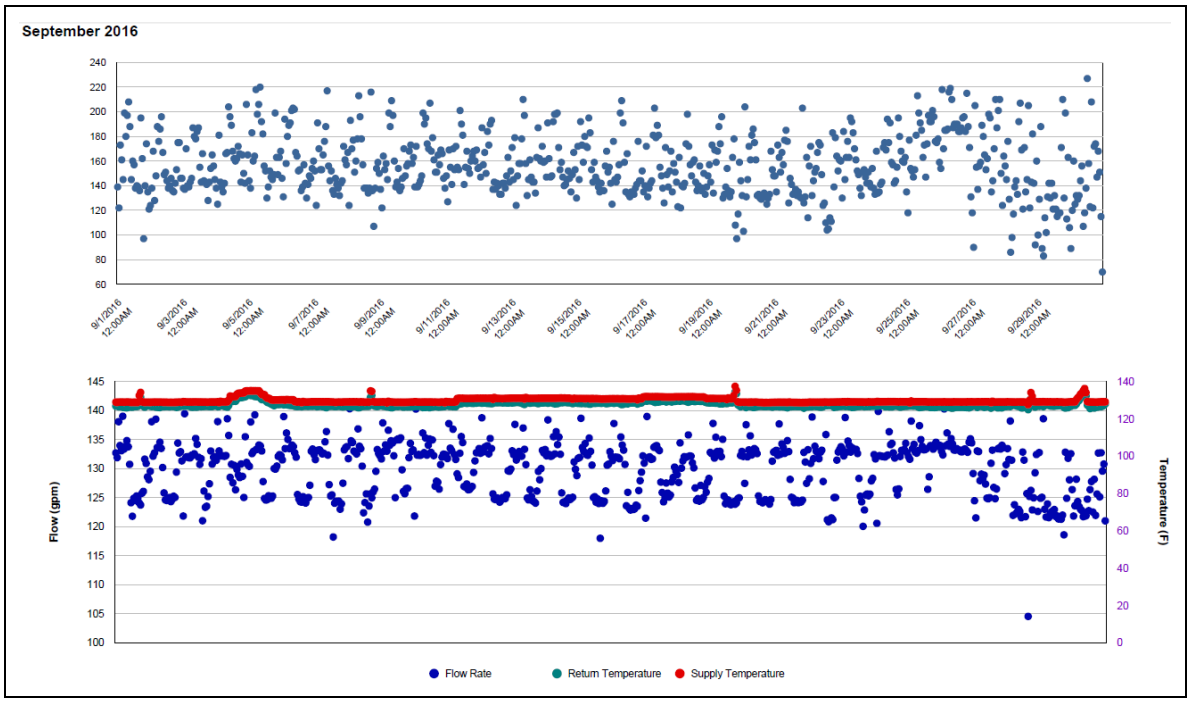
Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office. (HHW during August 2016)



Rudder Theatre Complex (TAMU BLDG # 446)

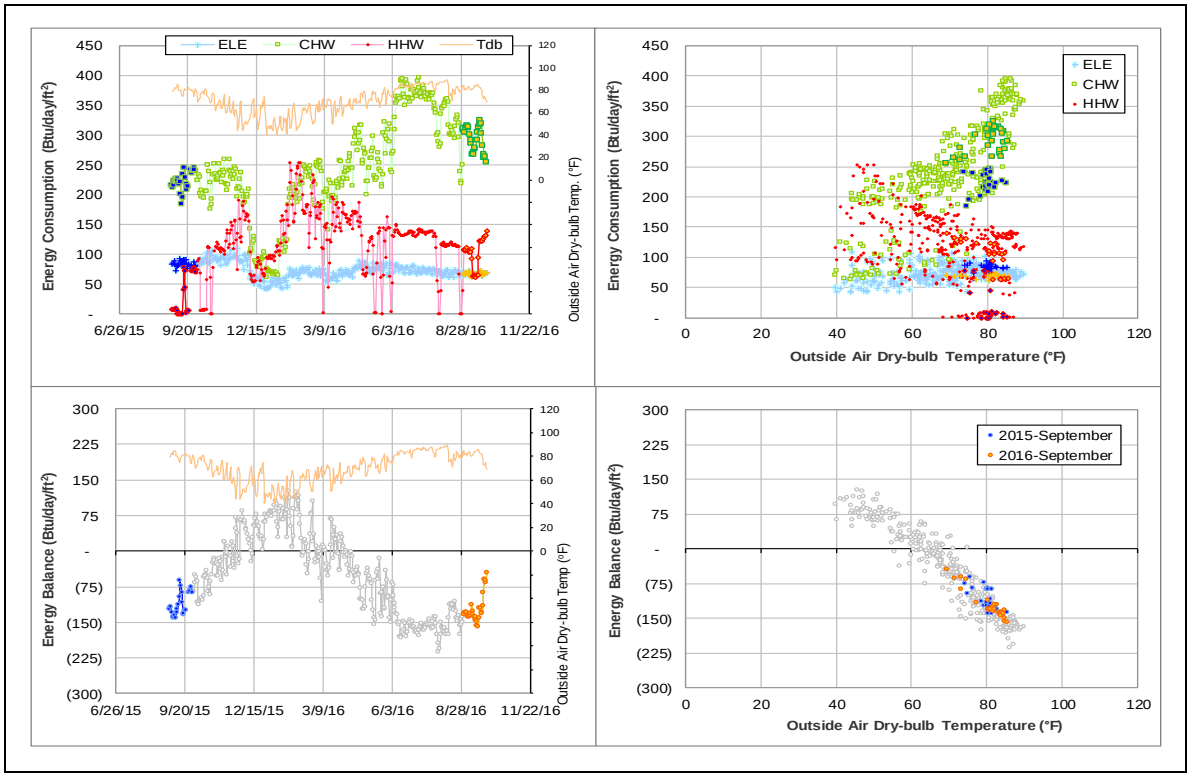
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption has increased, and was higher than the same month of last year.	Since June 2016

Comments

The CHW and HHW consumption has increased and was about 120 But/day/ft^2 higher than the same month of last year. However, the energy balance pattern didn't change.

Explanatory Figure: 13 months energy balance plot with original data



Academic Building (TAMU BLDG # 462)

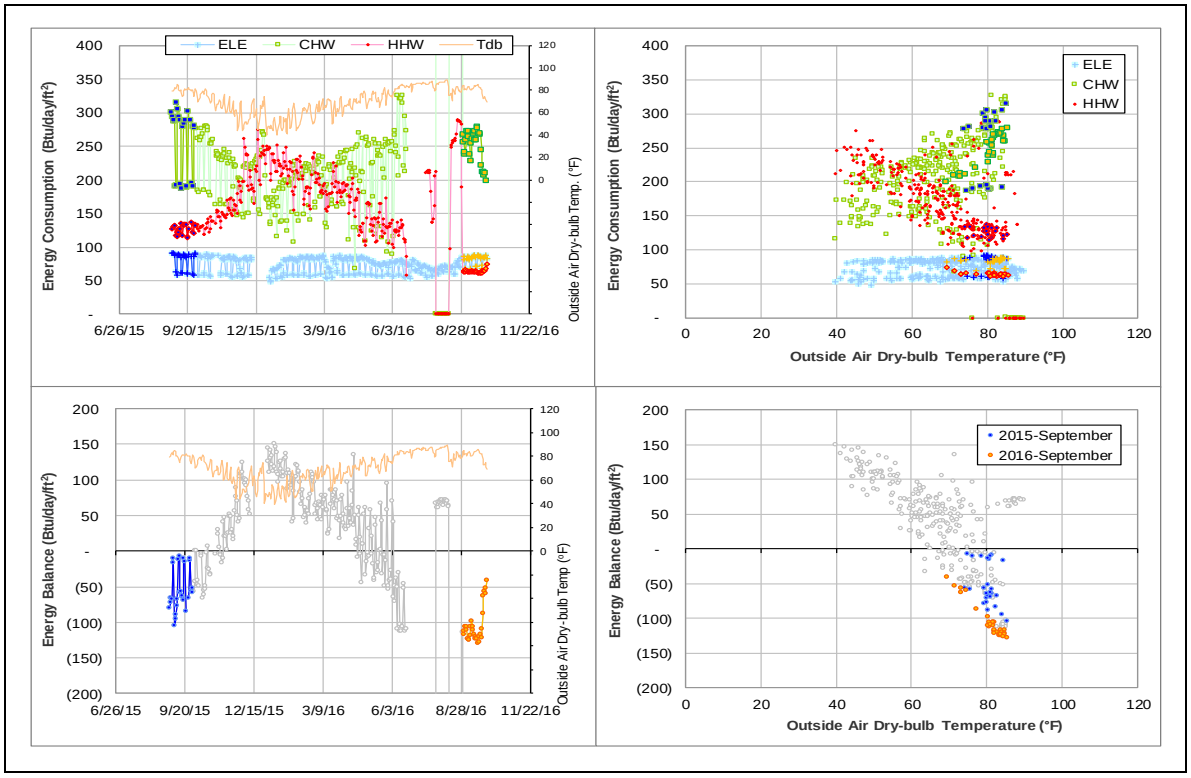
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	The pattern has changed after a meter faulty period.	Starting 9/2016
HHW	The pattern has changed and consumption has decreased after a meter faulty period.	Starting 9/2016

Comments

MID's CHW 005905 and HHW 005909 have been faulty since 6/2016. After this period, both CHW and HHW changed behavior. CHW no longer has different weekday and weekend patterns. HHW decreased significantly from 115 Btu/day-sf to 65 Btu/day-sf and has much less variance compared to the same month last year. More data are needed to investigate this change.

Explanatory Figure: 13 months energy balance plot with original data



Biological Sciences Building – East (TAMU BLDG # 467)

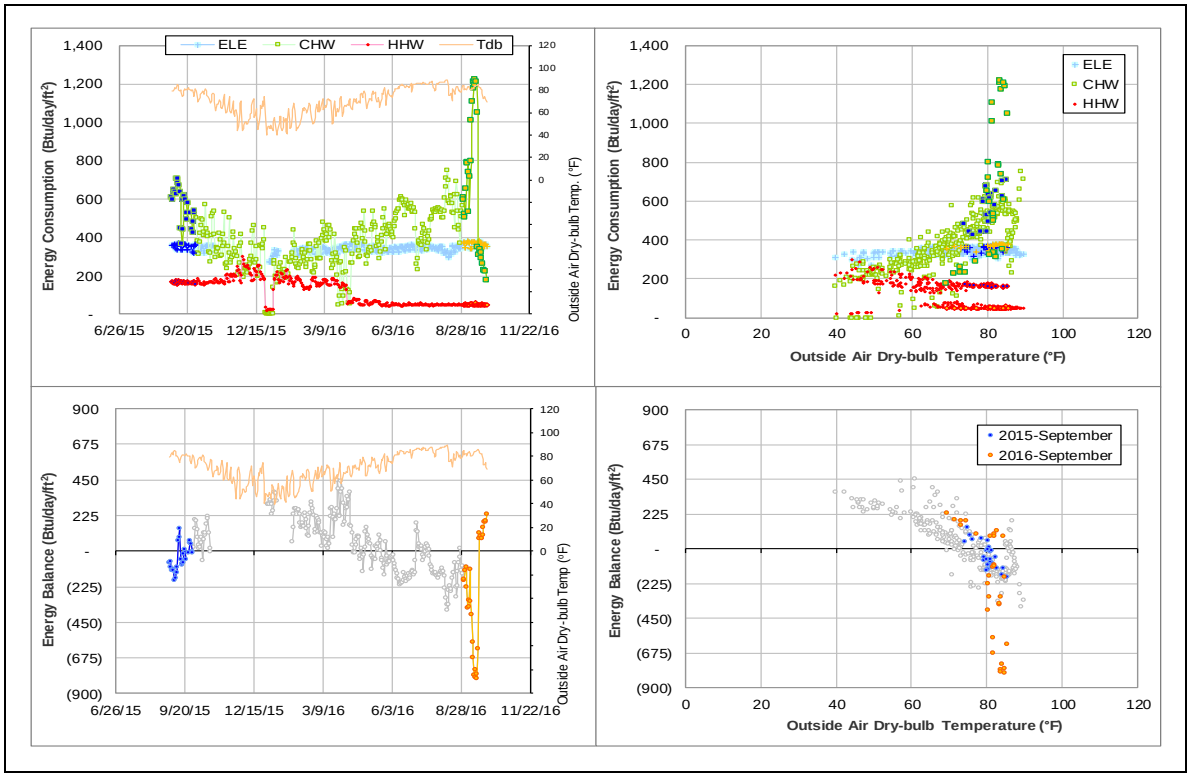
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Decreased after a meter faulty period.	Starting 7/2016
HHW	Decreased.	Starting 4/2016

Comments

A recent decrease occurred to both CHW and HHW. CHW appears to have been lower than the main pattern starting 7/2016, but the meter readings have been faulty starting 8/6/2016 and the CHW supply temp reading is still 3°F higher than adjacent buildings. These data are questionable. HHW consumption dropped from 140 Btu/day-sf level to 60 Btu/day-sf level in 4/2016 due to a sharp increase of return temp. See also section II-2.

Explanatory Figure: 13 months energy balance plot with original data



Williams Administration Building (TAMU Bldg #473)

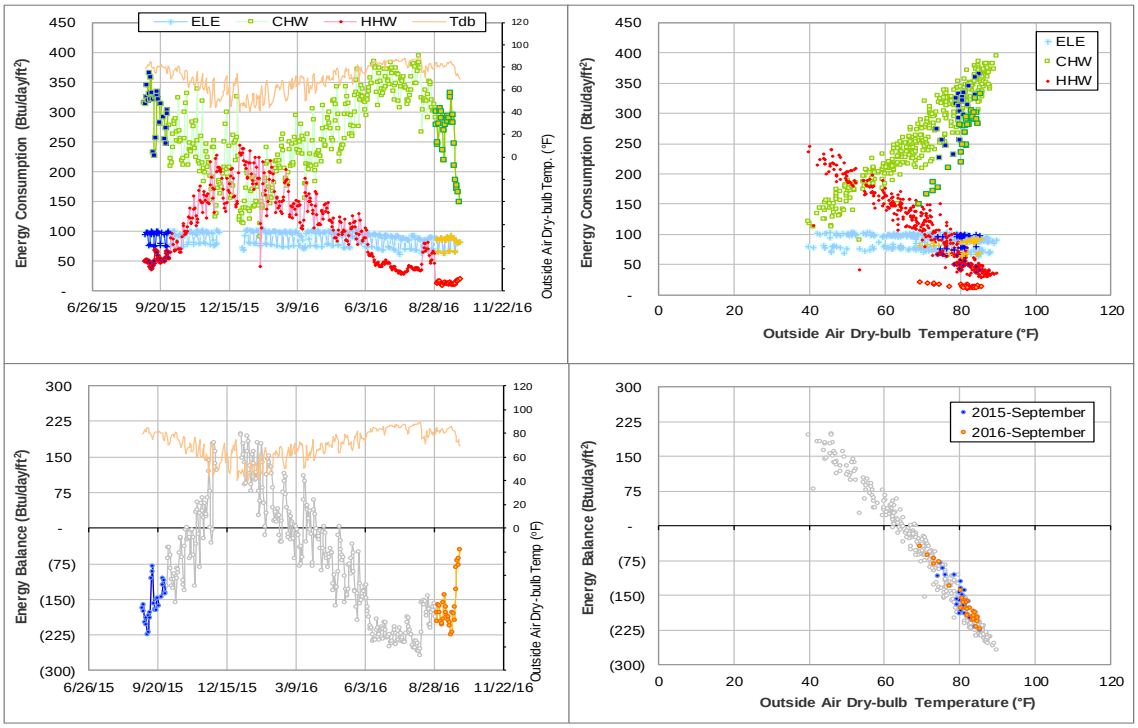
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Decreased	9/1/2015 – Ongoing
HHW	Increased	8/14/2015 – 9/1/2015
	Decreased	9/1/2015 – Ongoing

Quantitative descriptions and comments

Both CHW and HHW dropped out of the main pattern due to a lower flow rate and unstable Delta-T. Because the energy balance retains its stable pattern, this is not considered as a meter problem.

Explanatory Figure: 13 months energy balance plot with original data.



Scoates Hall (TAMU Bldg #478)

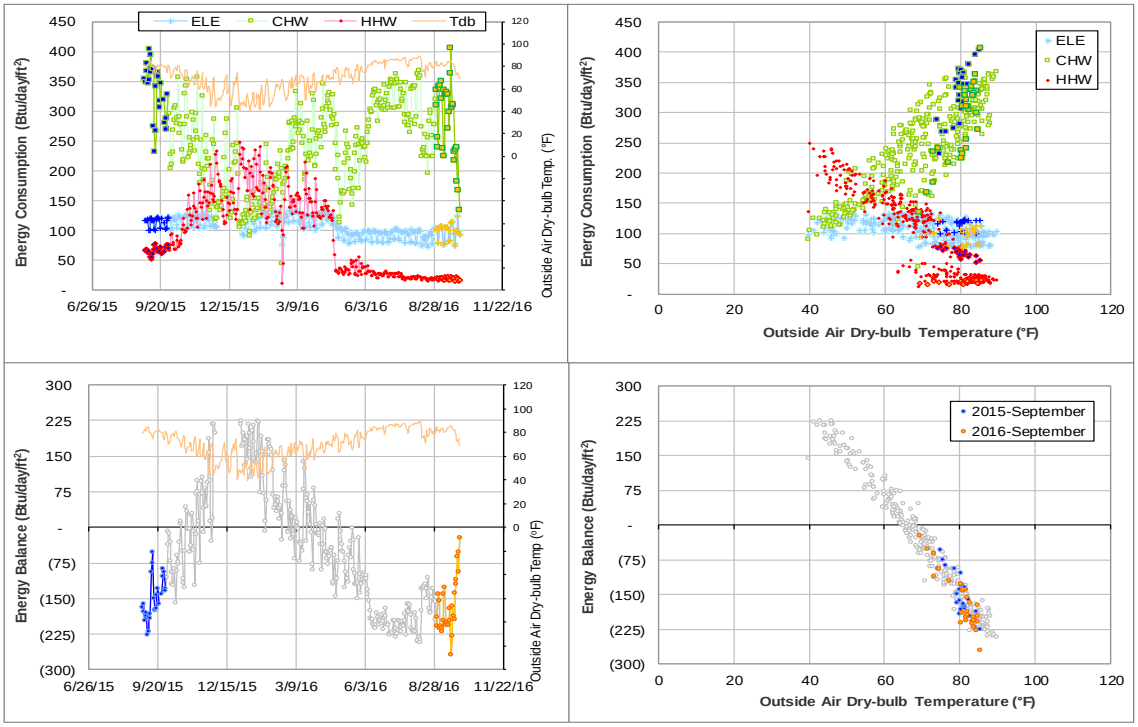
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The consumption level has significantly decreased.	4/26/2016 – Ongoing

Quantitative descriptions and comments

ELE, CHW, and HHW all saw a significant decrease in consumption starting since 4/26/2016 and kept decreasing in steps. Since the energy balance plot has retained its pattern, the drop may be due to a decrease in usage.

Explanatory Figure: 13 months energy balance plot with original data.



Fermier Hall (TAMU Bldg #482)

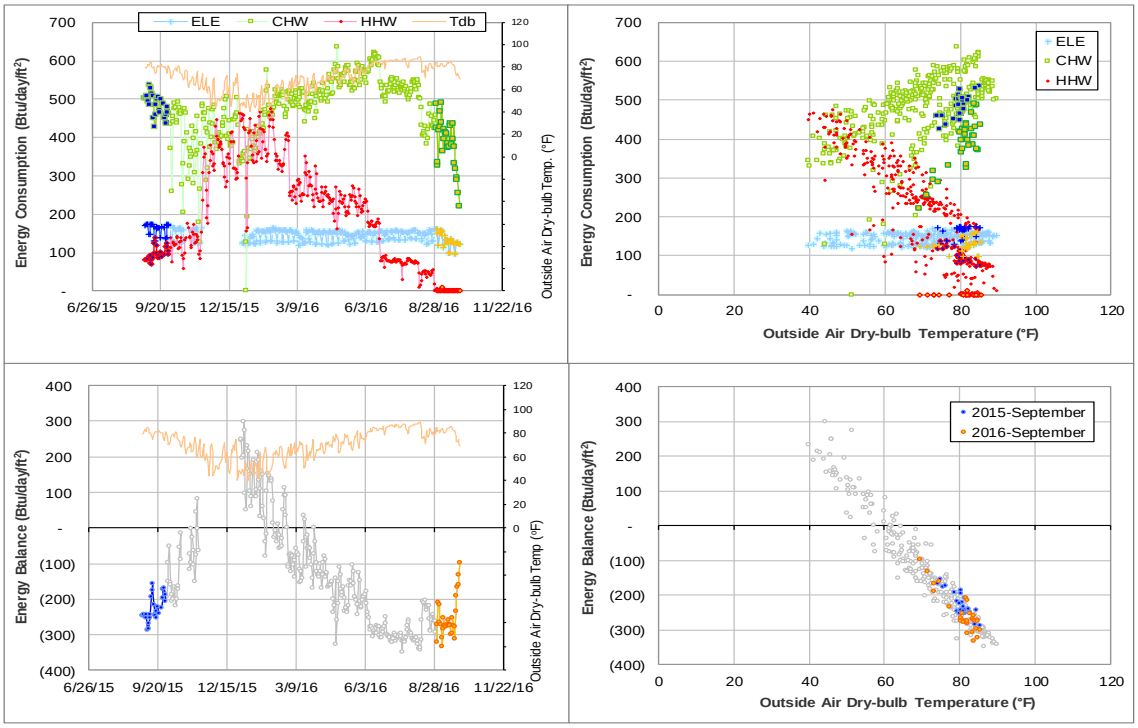
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW/HHW	The consumption level has significantly decreased.	6/24/2016 – Ongoing

Quantitative descriptions and comments

CHW and HHW of this building decreased significantly in steps since 6/24/2016. Since the energy balance plot has retained its pattern, the drop may be due to a decrease in usage.

Explanatory Figure: 13 months energy balance plot with original data.



Civil Engineering Building (TAMU Bldg #492)

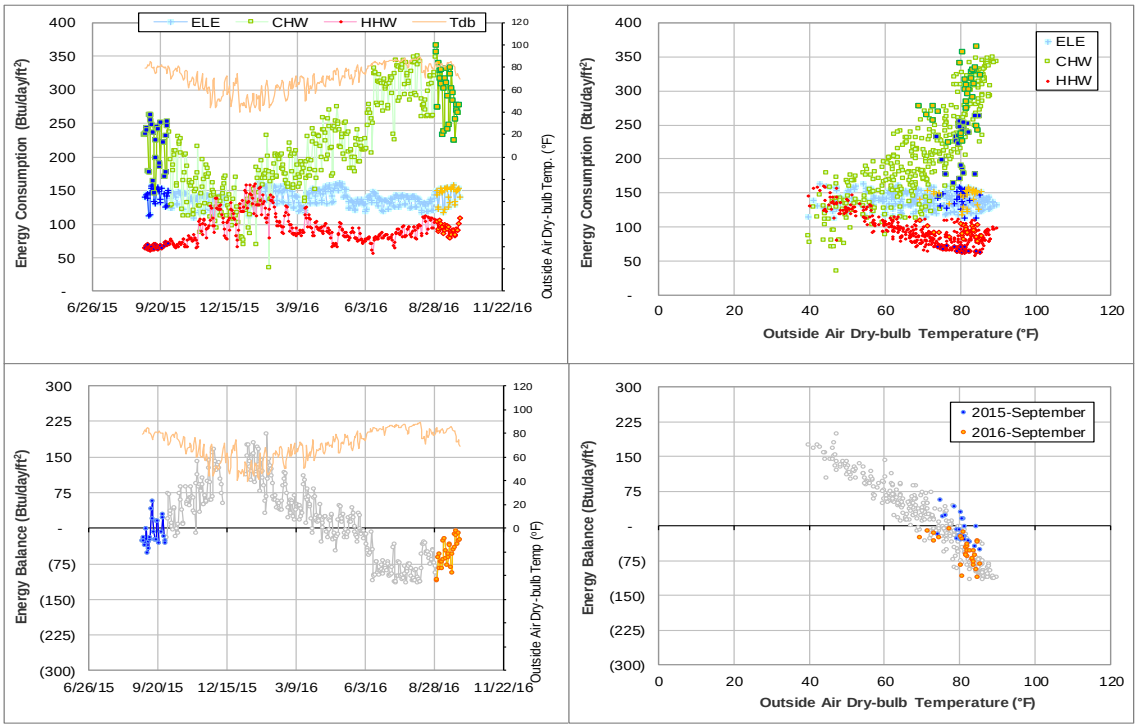
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
CHW	Increased	6/14/2016 – Ongoing
HHW	Increased	8/1/2016 – Ongoing

Quantitative descriptions and comments

CHW flow had rapid increase since 6/14/2016, 7/11/2016, but Delta-T adjusted and the consumption did not increase rapidly. The CHW consumption in current month is around 100 Btu/day/ft^2 higher than same month last year. The HHW delta T is showing an increase for the month of August. The CHW and HHW patterns for August can be seen sitting well above the 13-month pattern in the energy balance plot below. However, the energy balance keep the same pattern.

Explanatory Figure: 13 months energy balance plot with original data.



Utilities & Energy Services Central Office (TAMU Bldg #496)

Detected issues in the energy balance and/or the consumption data

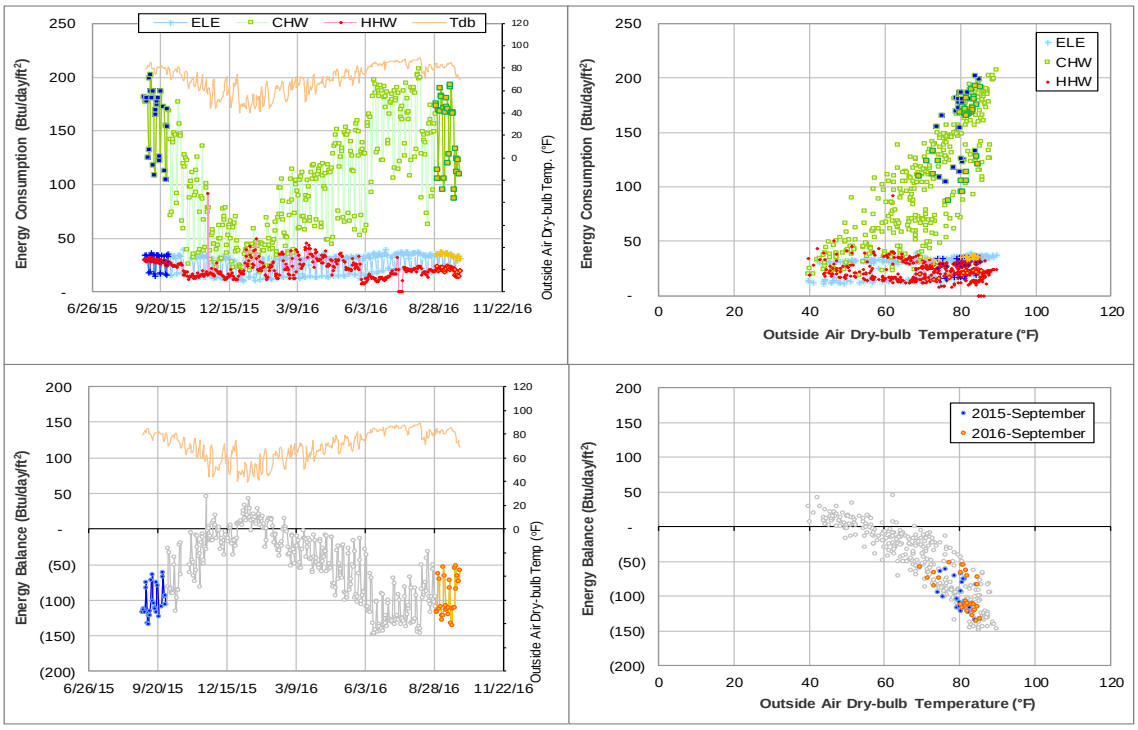
Data Type	Description of data behaviors	Period
ELE, CHW, and HHW	The energy use per unit floor area was low compared to other buildings.	Since the data became available on 7/1/2012

Quantitative descriptions and comments

The peak electricity use density was around 0.65 W/ft^2 which is small compared to that of other office buildings on campus. The delta T for HHW seemed to be small for years. The CHW and HHW consumption per the unit floor area also seemed to be low. It is possible that the GSF we have (46,110 ft^2) includes substantial unoccupied space.

The energy balance was scattered due to the consumption level changes for CHW and HHW, the cross-point temperature of the energy balance was ranged around 50 to 70°F.

Explanatory Figure: 13 months energy balance plot with original data.



Engineering Innovation Center (TAMU Bldg # 499)

Detected issues in the energy balance and/or the consumption data

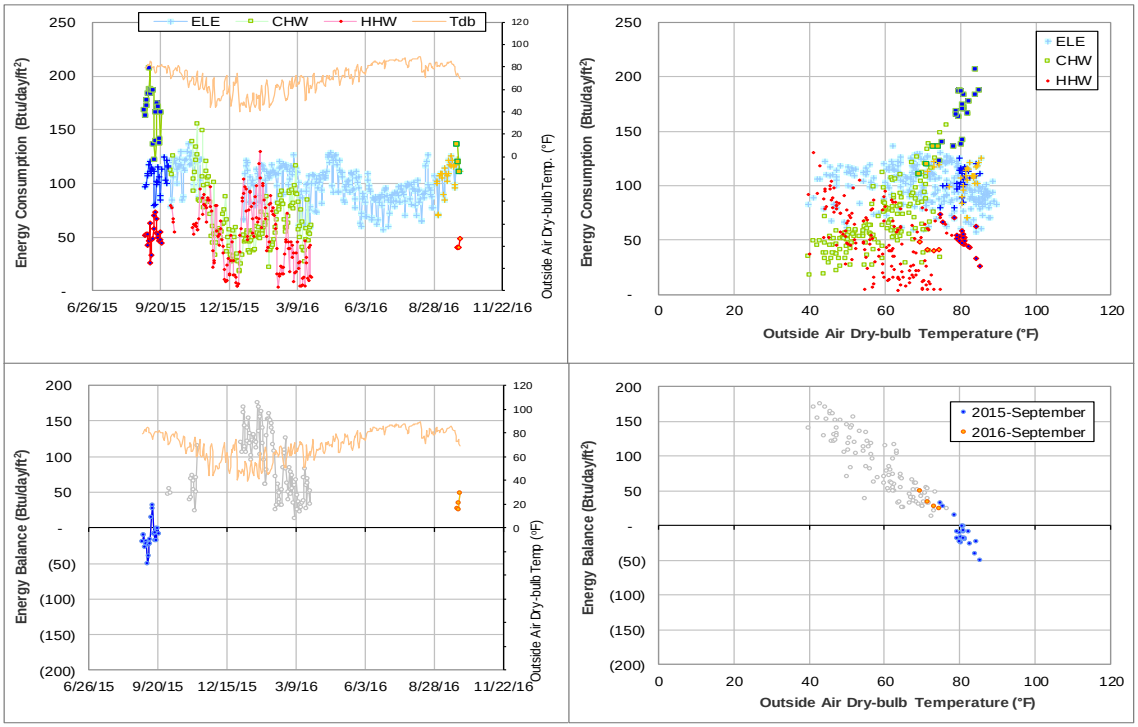
Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high.	For years
CHW	The consumption level is low compared to the ELE and HHW consumption.	For years

Comments

The cross-point temperature of the energy balance is around 80°F. The CHW consumption is relatively low and its delta T is always small.

CHW and HHW meter data has been missing since April 2016. The data are restored starting 9/27/2016.

Explanatory Figure: 13 months energy balance plot with original data. CHW and HHW data is not available for the months of April – August and do not appear in the below plots.



Nagle Hall (TAMU Bldg #506)

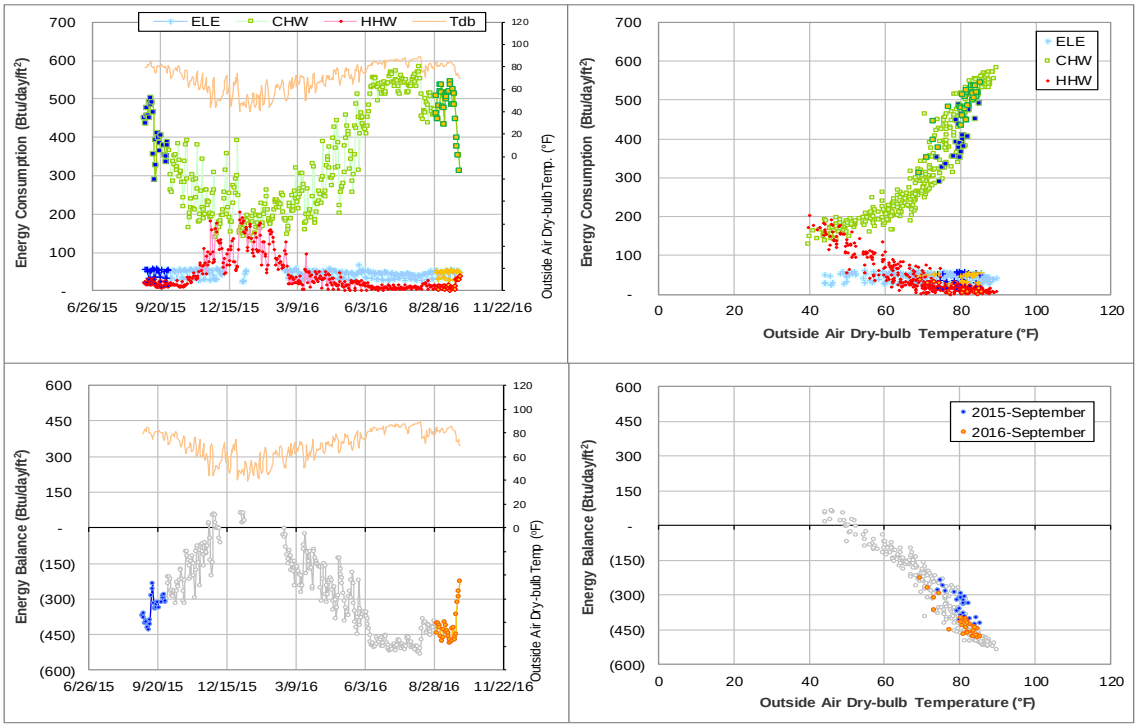
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The level was low and the cross-point temperature was around 50°F.	The cross-point temperature has always been low.
ELE	The consumption per unit floor area was smaller than those for other office buildings.	The level was always low and gradually decreased over the past 4 years.

Comments

The ELE consumption was about 100 Btu/day/ft^2 lower than the levels in typical office buildings on campus, and this might be a metering error or this meter might not cover the whole building.

Explanatory Figure: 13 months energy balance plot with original data



Beutel Health Center (TAMU Bldg #520)

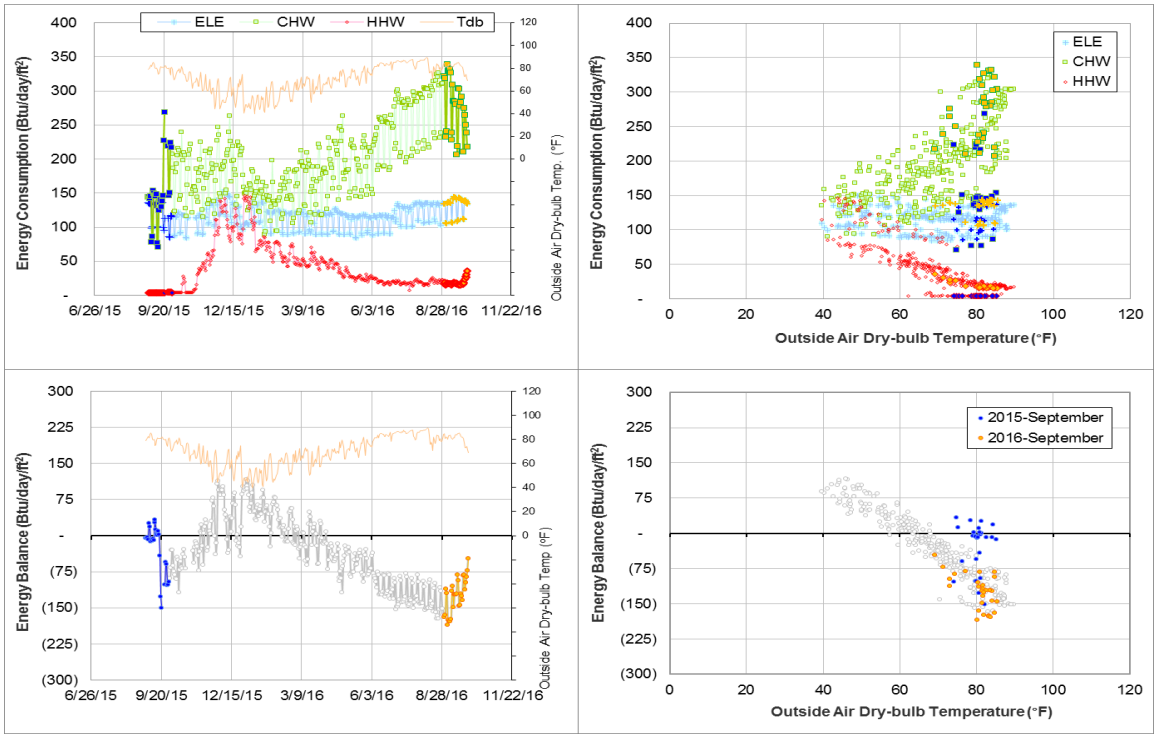
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	ELE consumption level increased.	7/2/2016 – Ongoing

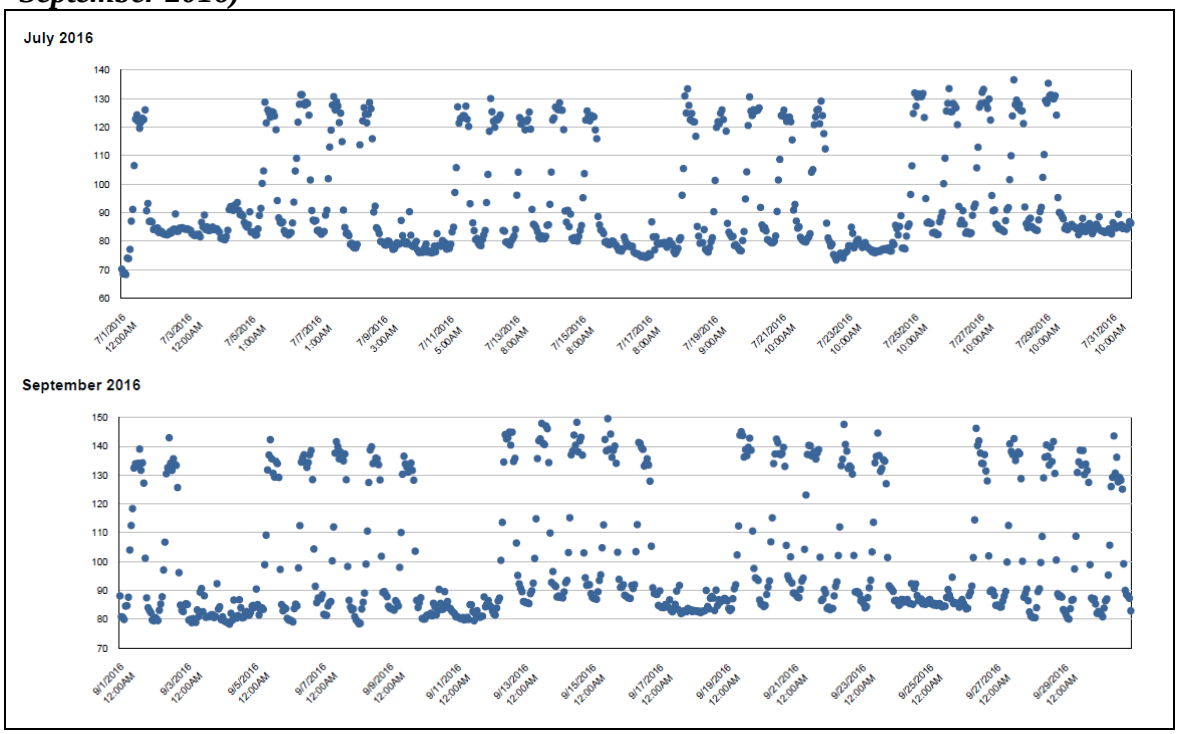
Comments

The ELE consumption seems to have increased around 7/2/2016. The building's base electrical load increased from 70 kW in June to 80 kW in July and continues to hold this pattern.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly ELE energy consumption from the utilities office. The increase can be seen around 7/2/2016. (top: July 2016, bottom: September 2016)



Blocker Building (TAMU Bldg #524)

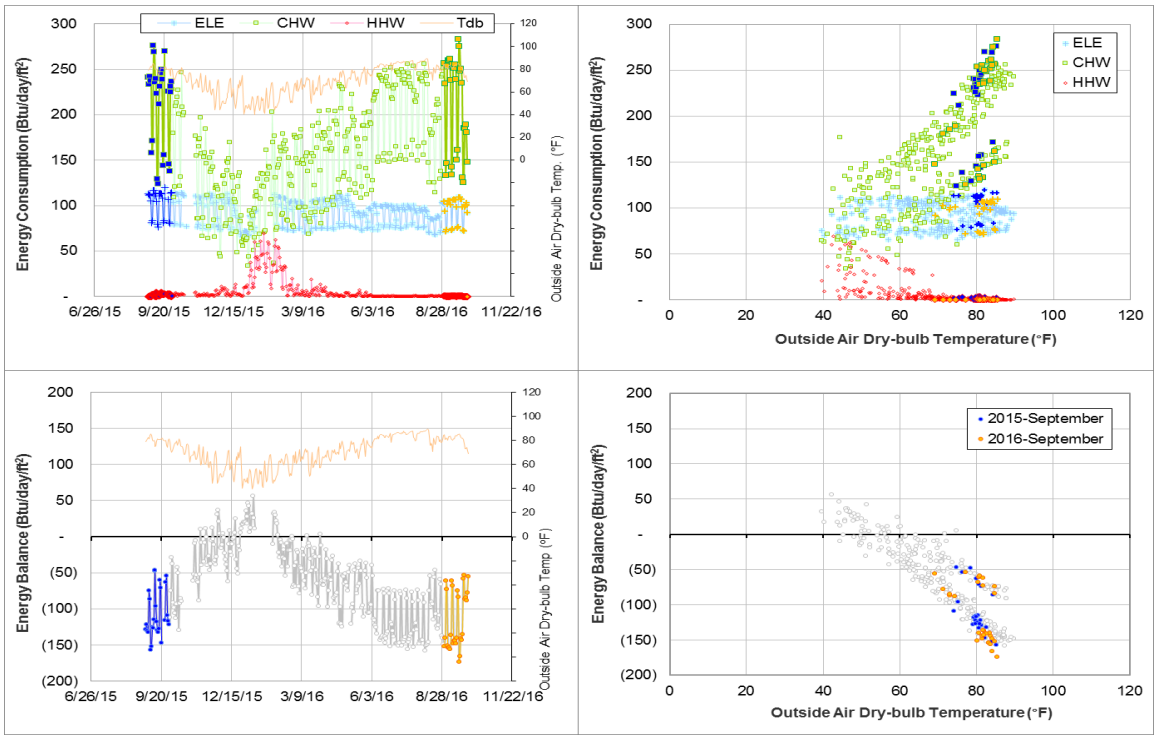
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
HHW	The consumption level might be low.	Past several years

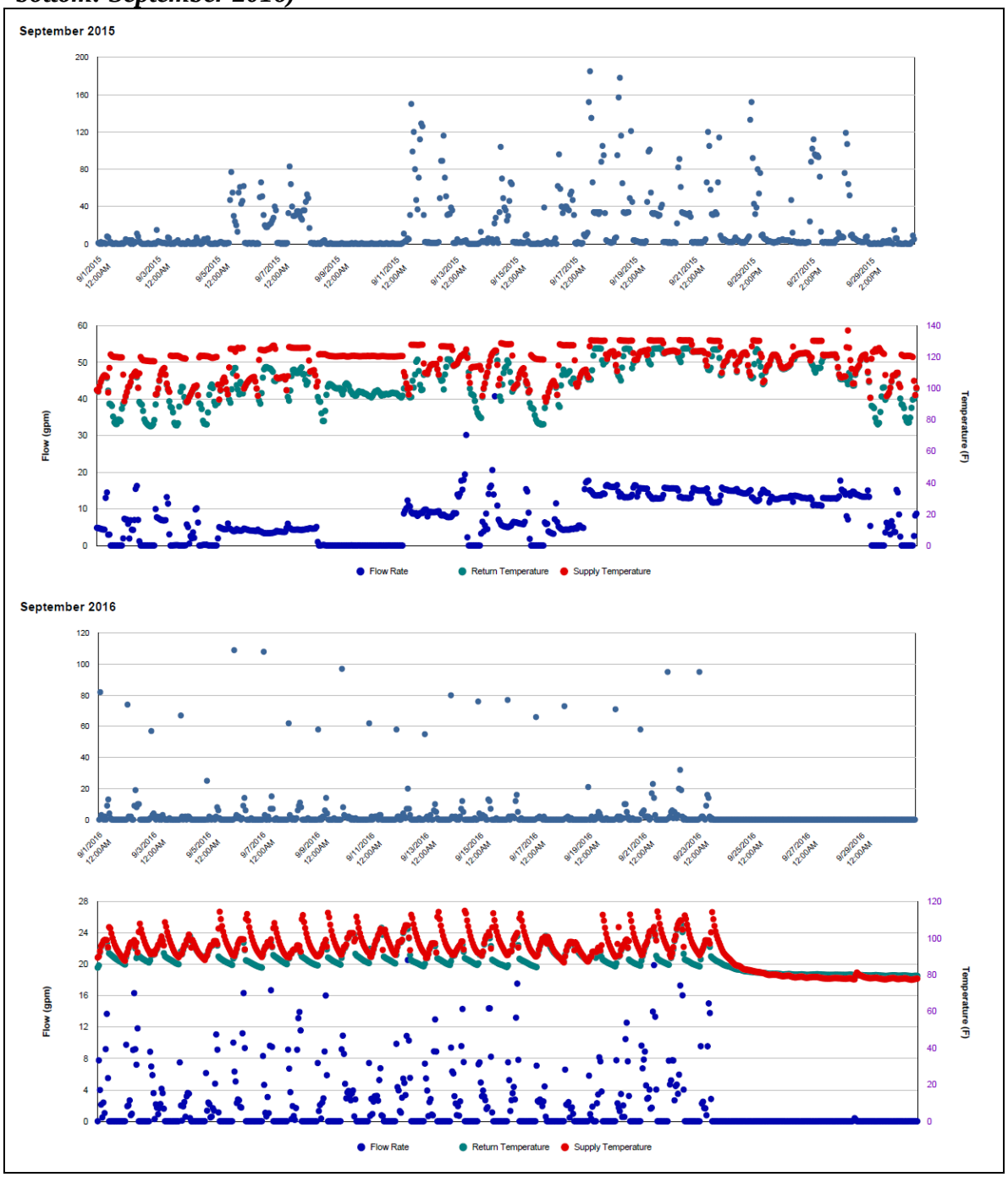
Quantitative descriptions and comments

The delta T and consumption level for HHW seems low for the past couple of years.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly HHW energy consumption, flow rate, and supply and return temperatures from the utilities office. (top: September 2015, bottom: September 2016)



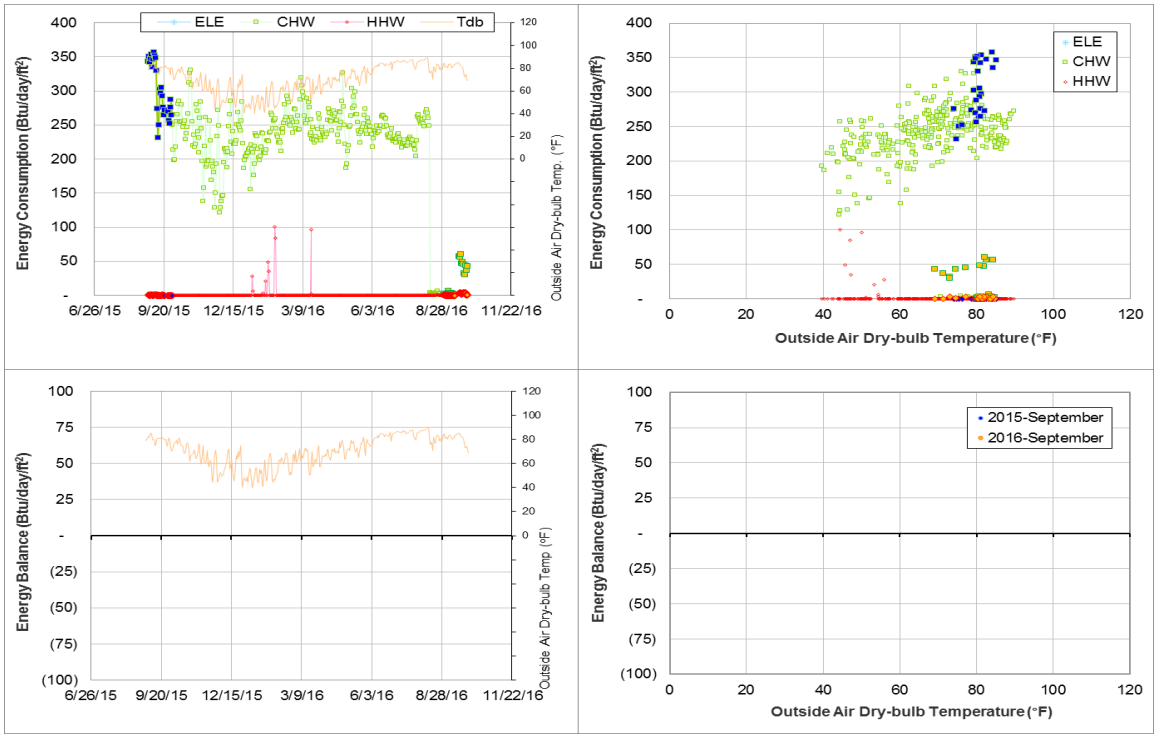
TVMC-Small Animal Building (TAMU Bldg# 880)

Data Type	Description of data behaviors	Period
HHW	The daily consumption is zero or nearly zero for the majority of the days during the year.	Since the data became available in October 2008

Comments

The daily HHW consumption pattern is zero or nearly zero for the majority of the days for years. Because the HHW consumption level appears unstable since the data became available, a valid consumption model for this meter has not been created.

Explanatory Figure: 13 months energy balance plot with original data



Veterinary Medicine Administration (TAMU Bldg# 1026)

Detected issues in the energy balance and/or the consumption data

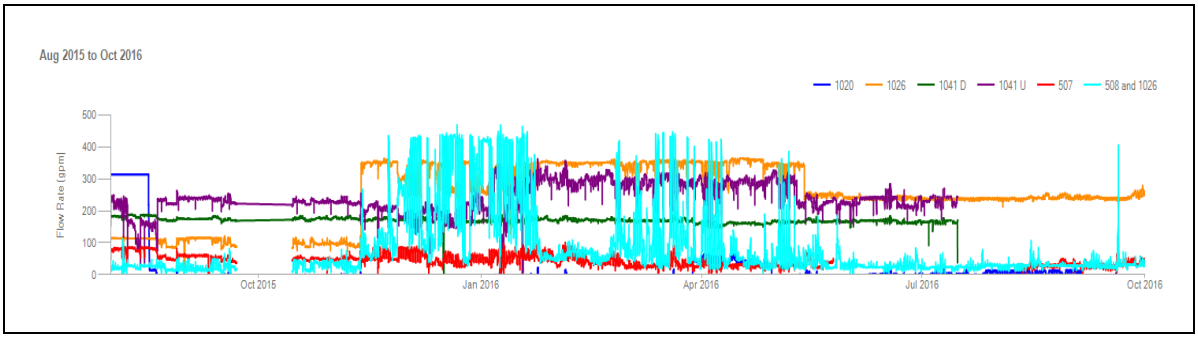
Data Type	Description of data behaviors	Period
HHW 006053	The sub-meter's (006053) flow rate for one building sometimes is higher than the total meter (004170) for two buildings.	For several years

Comments

The HHW meter ID 006053 is a sub-meter of the meter ID 004170 which meters the total energy use in the buildings #508 and 1026. It is questionable that the flow rate of the sub-meter exceeds the flow rate of the main meter. We would like to know the HHW distribution route for the two buildings and the locations of the sensors.

ESL has not received the consumption data for the HHW meter since 10/21/2012.

Explanatory Figure: Time series of hourly HHW flow rates for Veterinary Medicine Administration (Bldg #1026) and neighboring buildings during 8/1/2015–10/1/2016. The combined HHW metered for Bldg #1026 and #508 (light blue) is lower than the standalone HHW meter for only Bldg #1026 (dark blue).



Biological Control Facility (TAMU Bldg# 1146)

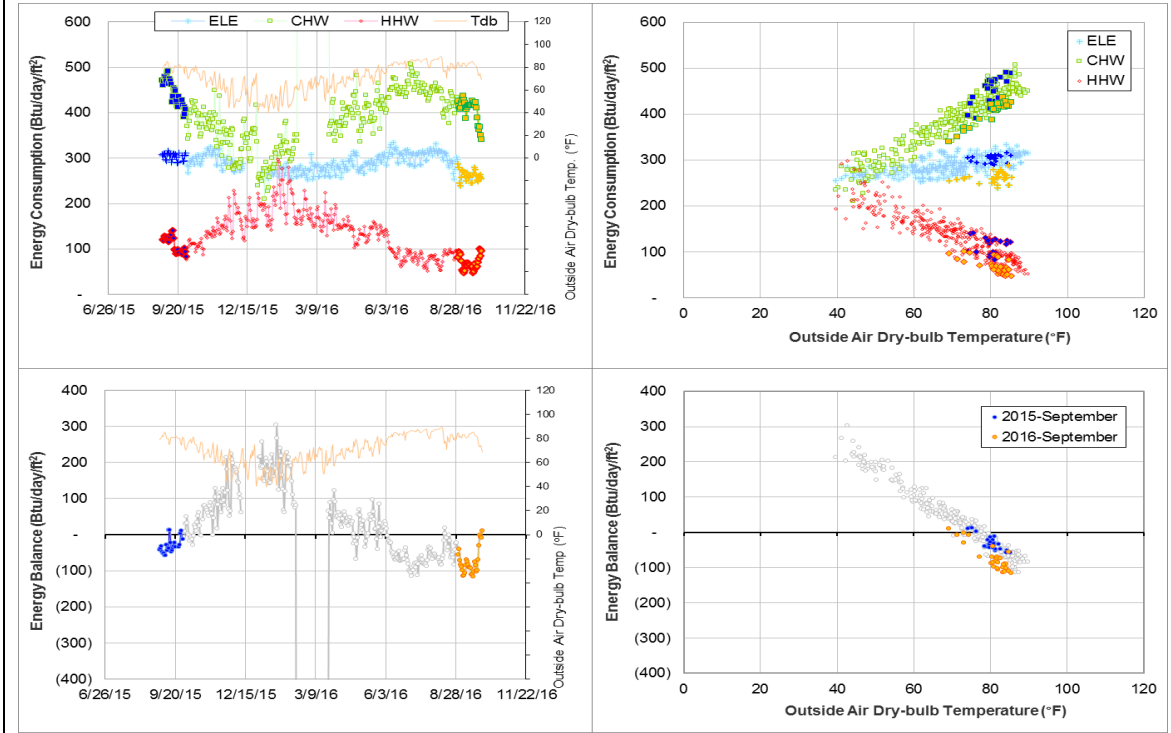
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is slightly high, ~75°F.	12/28/2014-9/2/2016
ELE	The consumption increased gradually.	12/28/2014-9/2/2016

Comments

The electricity consumption increased gradually over several years. As a result, the energy balance pattern changed and the cross-point temperature shifted slightly higher from approximately 70°F to 75°F. On 9/3/2016, the electricity consumption appears to have decreased and the cross-point temperature has shifted lower to approximately 71°F. If this new pattern continues to hold we will remove this issue from the report and continue to monitor it.

Explanatory Figure: 13 months energy balance plot with original data



Physical Plant Administration & Shops (TAMU Bldg# 1156)

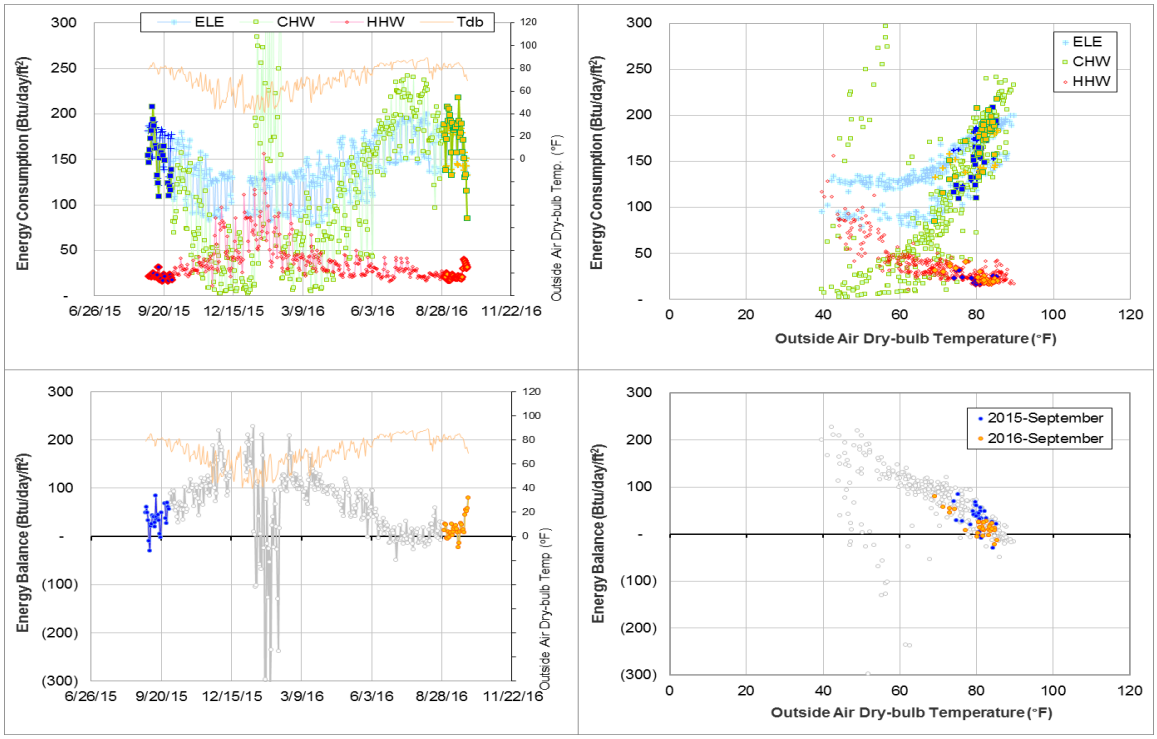
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point temperature is high, ~85°F.	7/1/2014-ongoing
CHW	The consumption level might be low compared to the ELE and HHW use level.	Since the data became available on 7/1/2012.

Comments

The electricity is not available until 7/1/2014. CHW consumption level might be low compared to the ELE and HHW use level. But the CHW consumption level has been stable since the data became available on 7/1/2012. More information might be needed to help identify which type energy causes the high cross-point temperature.

Explanatory Figure: 13 months energy balance plot with original data



Veterinary Research Building (TAMU Bldg# 1197)

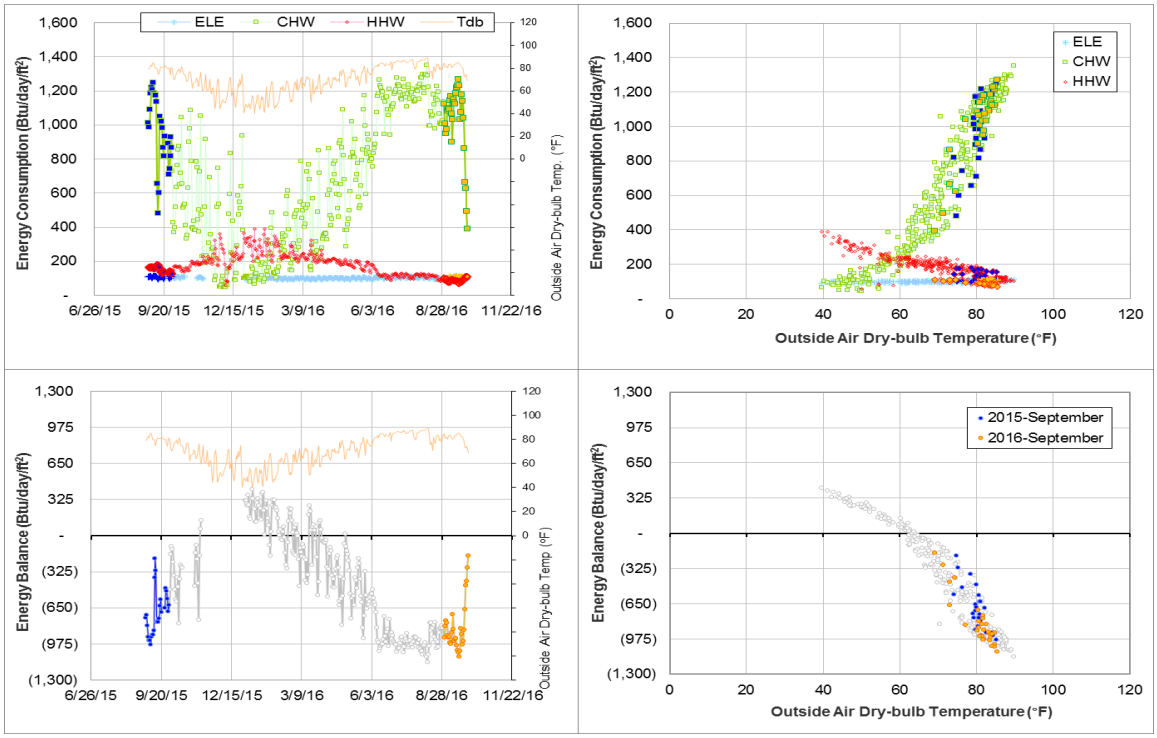
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
ELE	The consumption is low for a laboratory building.	Since January 2010 when the meter was added to this report

Comments

The whole building hourly electricity use is in the range 130 kWh to 180 kWh (1.13 W/ft^2 to 1.57 W/ft^2), which is low for a veterinary laboratory building on the campus. This seems to be the reason for the low level of the energy balance load. The temperature-axis intercept of the energy balance is around 62°F.

Explanatory Figure: 13 months energy balance plot with original data



Kleberg Center (TAMU Bldg #1501)

Detected issues in the energy balance and/or the consumption data

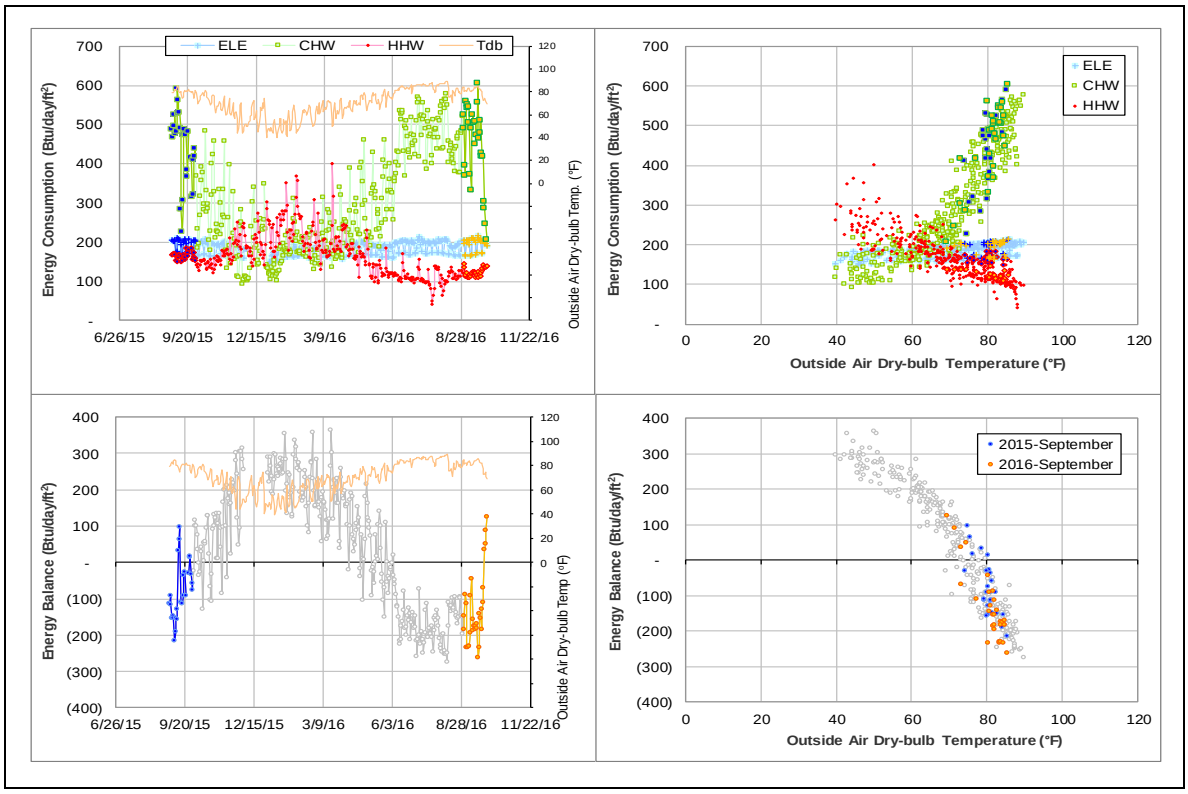
Data Type	Description of data behaviors	Period
CHW	The return temperatures is high. Delta-T is bigger than that for similar buildings in campus.	Since we started to analysis this building in 2006.

Comments

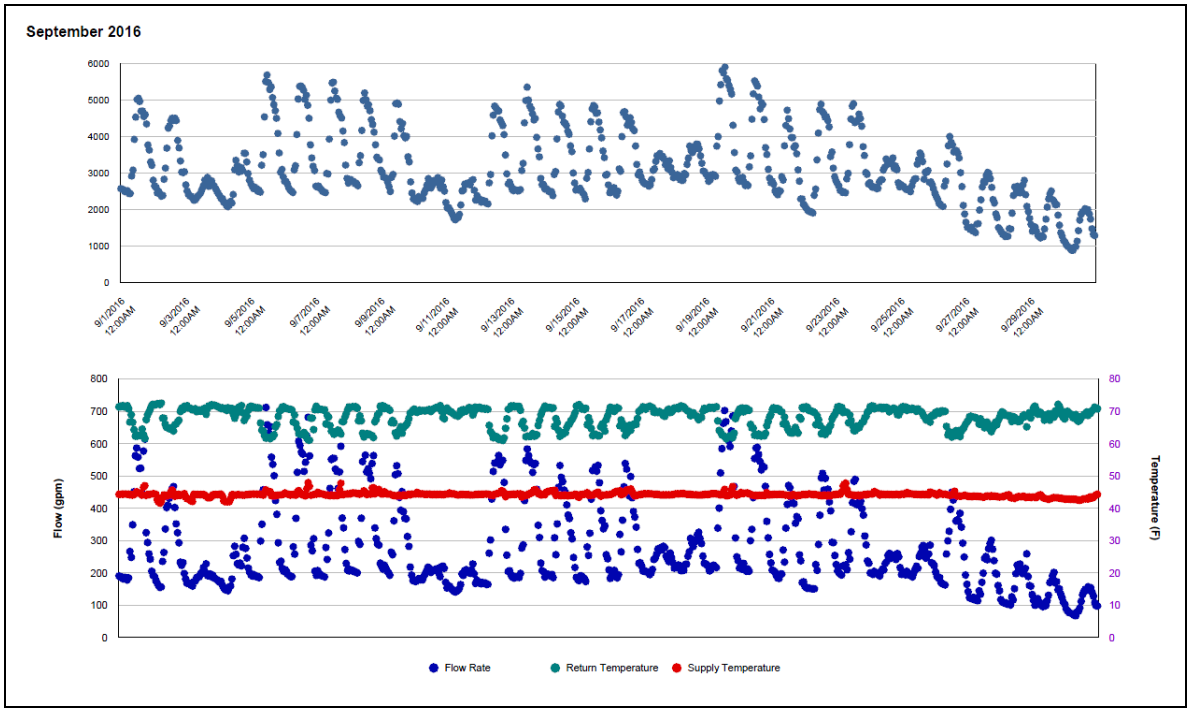
The return temperature for CHW meter was high, about 60 - 70°F for years. The return temperature increased further on 11/13/2014 and it reached 80°F sometimes. Delta-T for this building (25 - 35°F) is much bigger than that for similar buildings in campus.

The ESCO period for this building is 5/1/2011-1/1/2012. The CHW consumption level has been stable for over three years after ESCO period.

Explanatory Figure: 13 months energy balance plot with original data



Explanatory Figure: Time series plots of hourly energy consumption, flow rate, and supply and return temperatures from the utilities office (CHW during September 2016)



International Ocean Discovery Building (TAMU Bldg #1601)

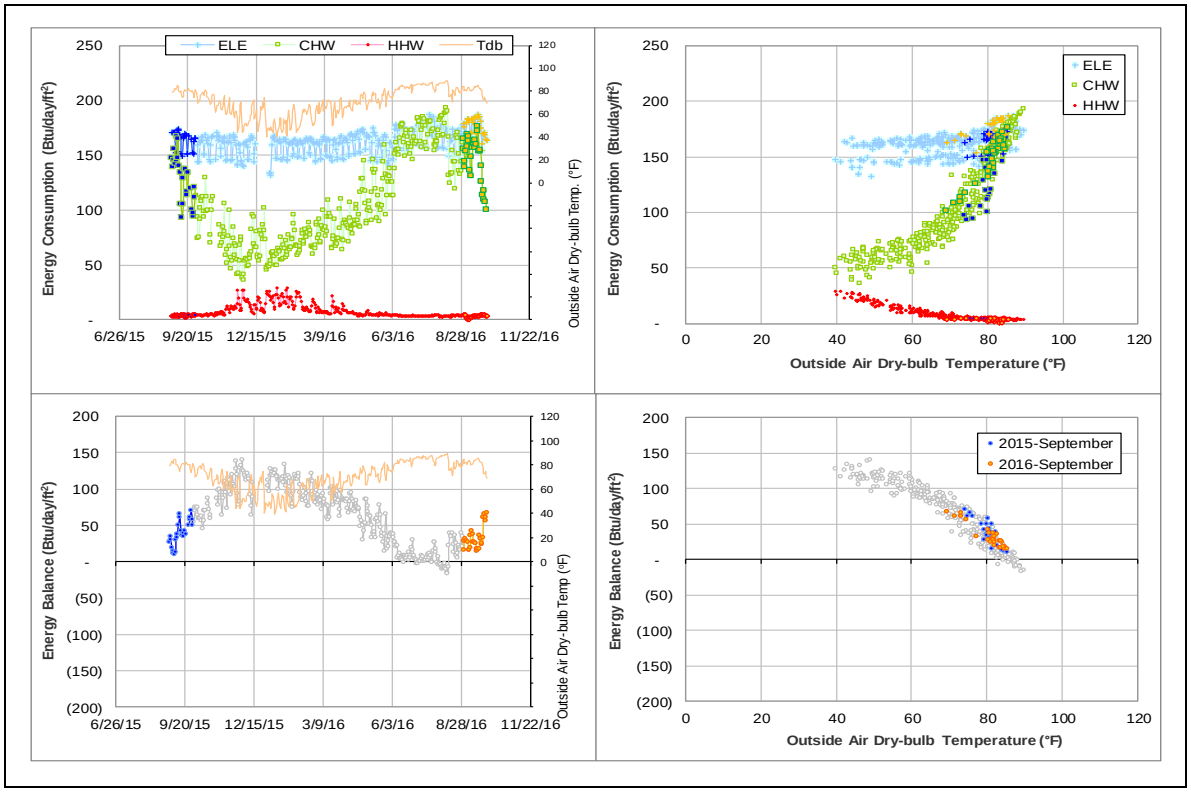
Detected issues in the energy balance and/or the consumption data

Data Type	Description of data behaviors	Period
Energy Balance	The cross-point is high, around 85°F.	Since data became available in Feb 2015

Comments

The cross-point temperature is high for this building, around 85°F. The daily CHW consumption for last year is 40 – 180 Btu/day/ft^2. The CHW consumption level is low compared to ELE and HHW levels. This building might have its chillers.

Explanatory Figure: 13 months energy balance plot with original data



Offshore Technology Research Center (TAMU Bldg #1604)

Detected issues in the energy balance and/or the consumption data

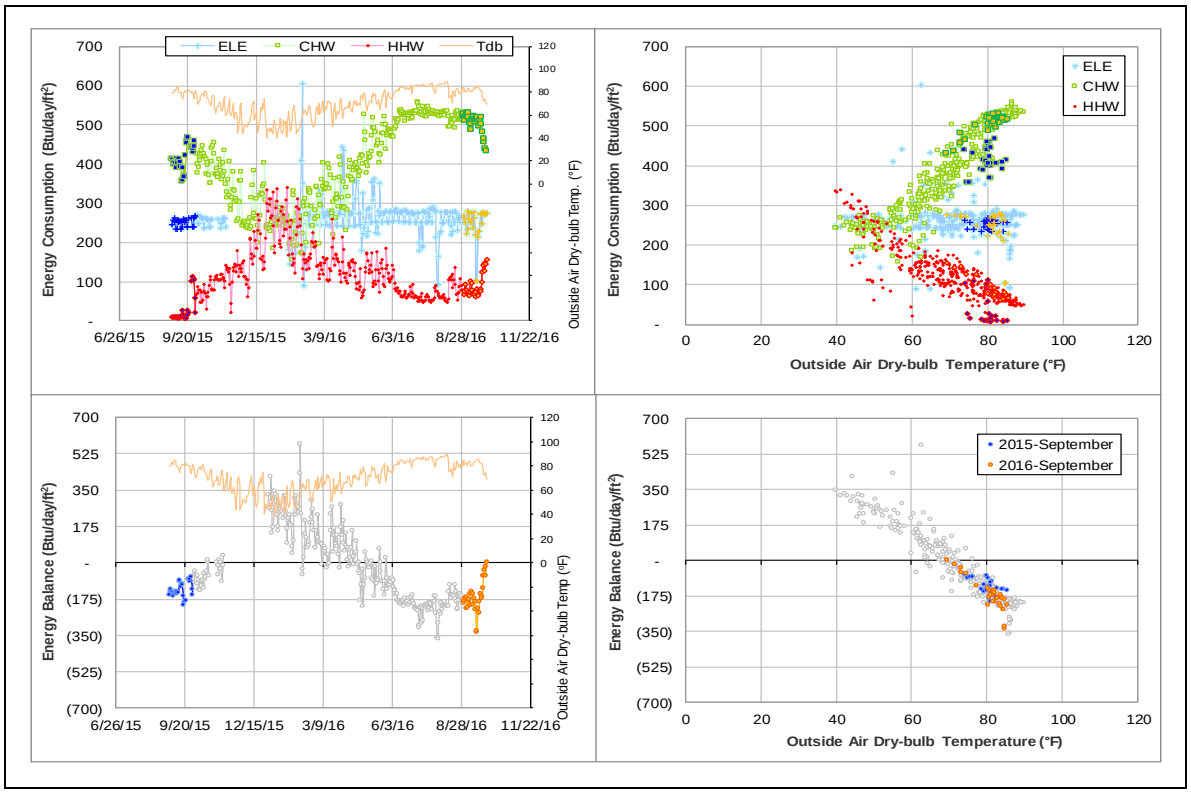
Data Type	Description of data behaviors	Period
ELE (006660)	The daily consumption was recorded as zero for the majority of the days.	Since data became available in Feb 2015
CHW and HHW	The consumption level is higher than that of last year.	5/1/2016-ongoing

Comments

Both CHW and HHW consumption level is higher than that of last year in this month.

There are two ELE meters (006659 and 006660). The daily consumption for MeterID 006660 was recorded as zero for the majority of the days since data became available in February 2015. The daily consumption for several days in recent several months increased largely and caused scattering energy balance.

Explanatory Figure: 13 months energy balance plot with original data



III. Time Series Plots for September 2016 Consumption

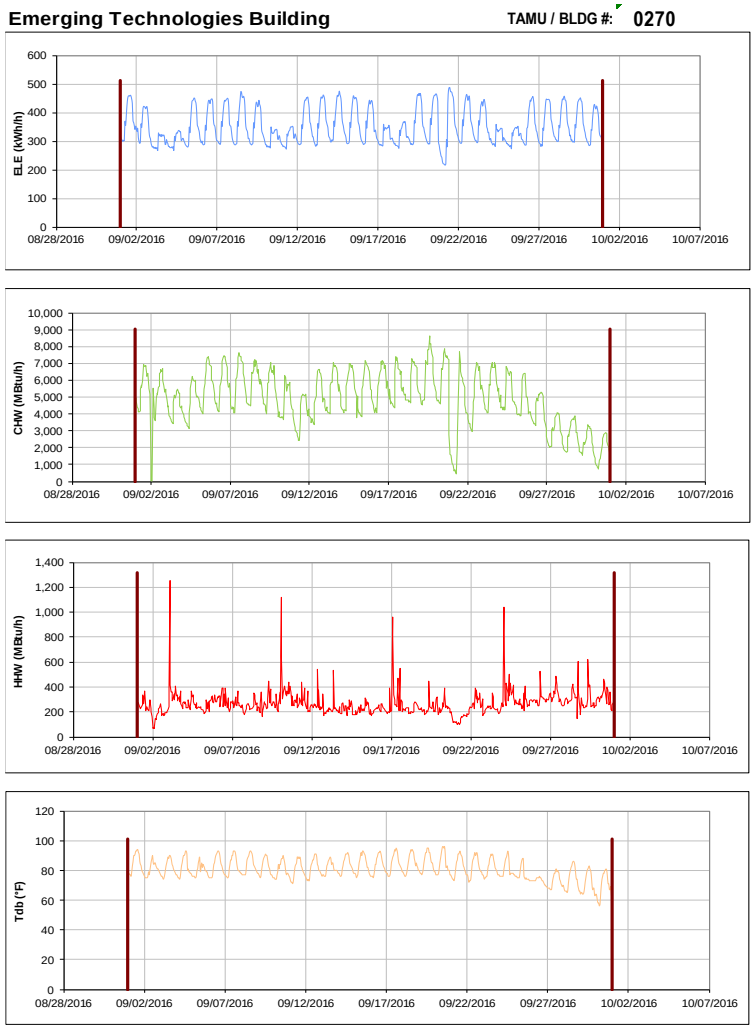


Figure III-1 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Emerging Technologies Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

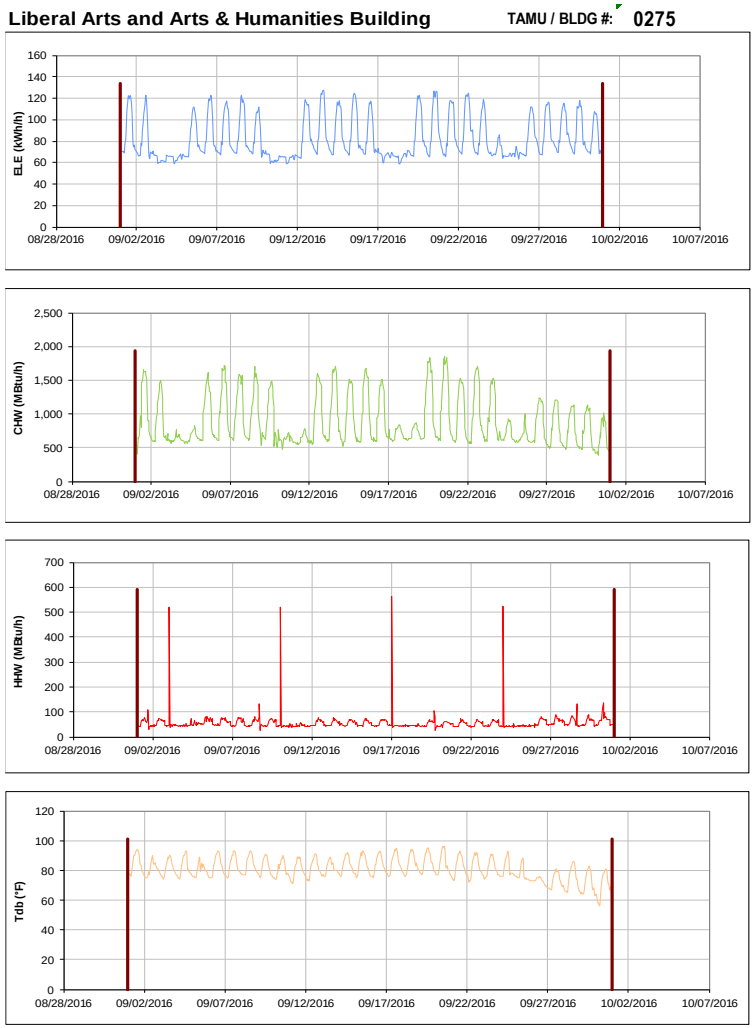


Figure III-2 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Liberal Arts and Arts & Humanities Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

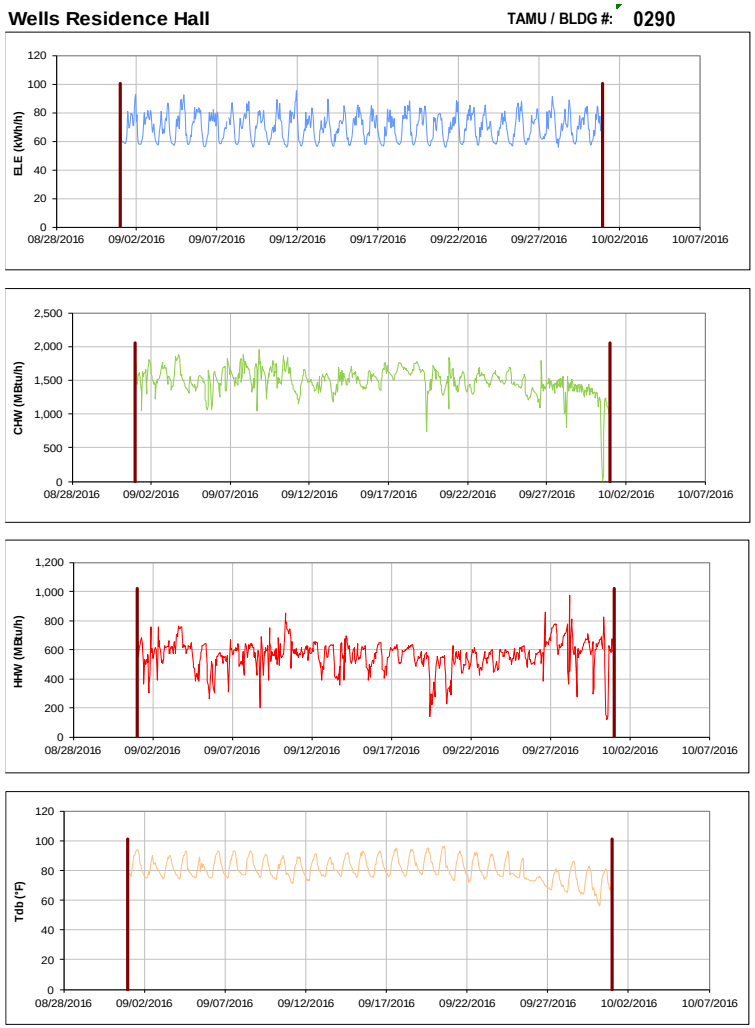


Figure III-3 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wells Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

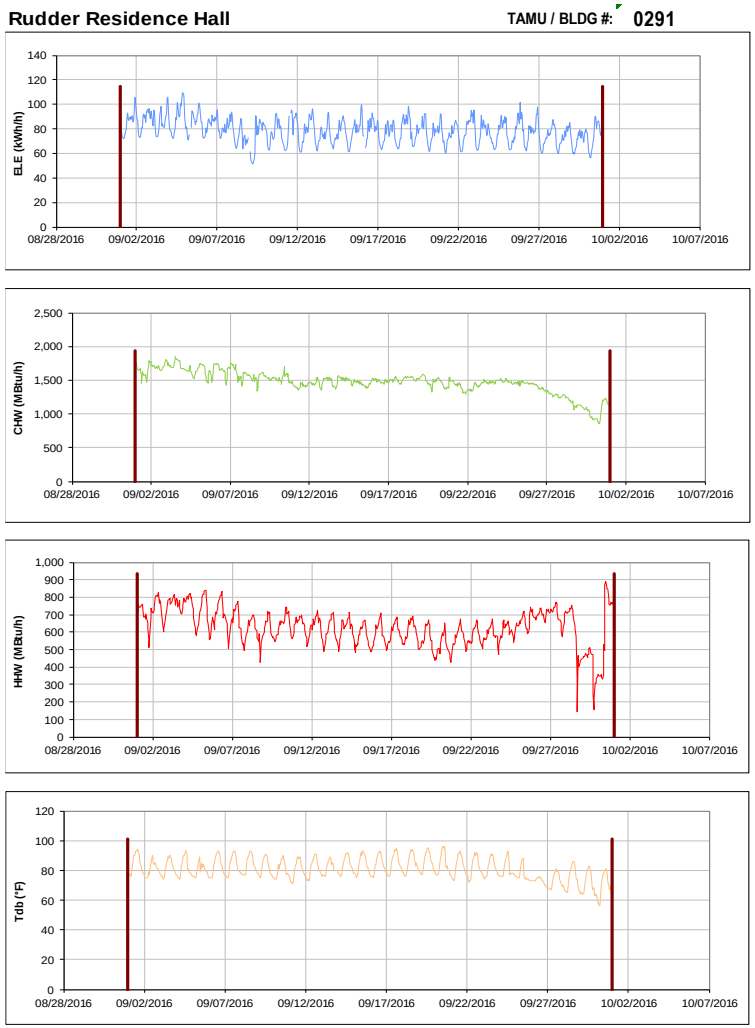


Figure III-4 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

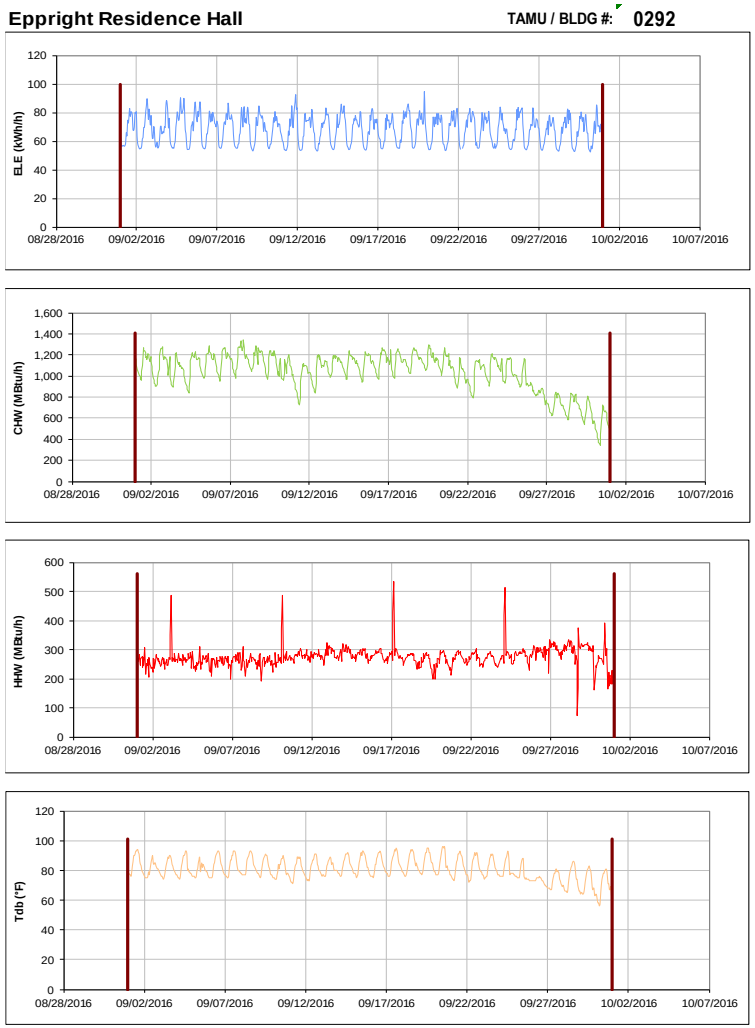


Figure III-5 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Eppright Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

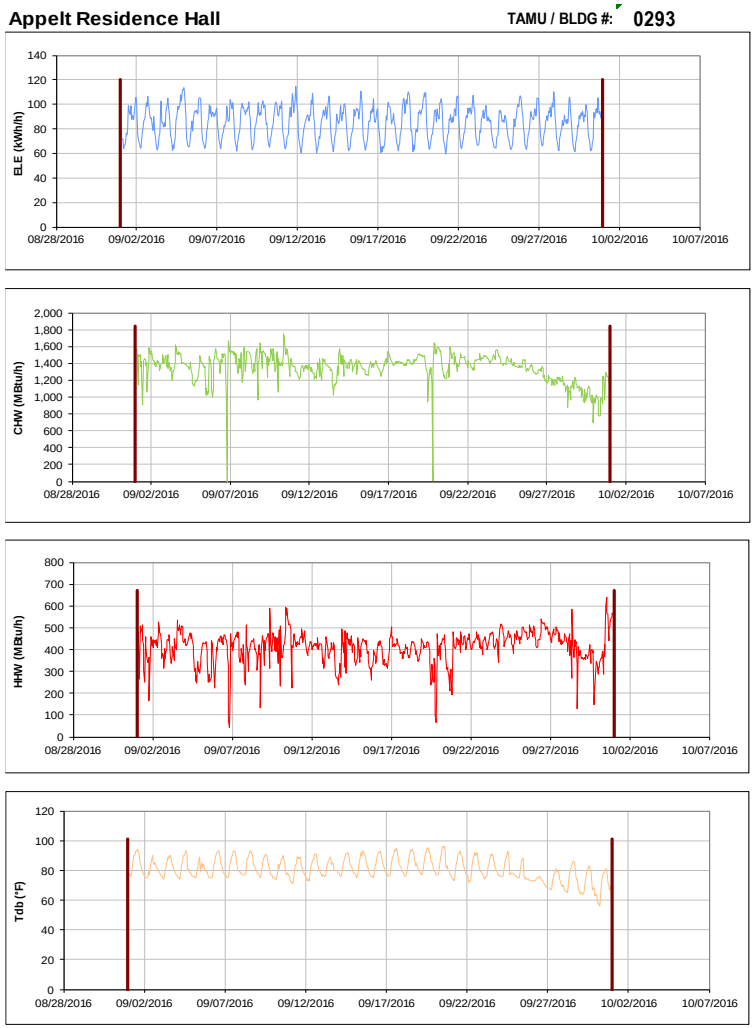


Figure III-6 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Appelt Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

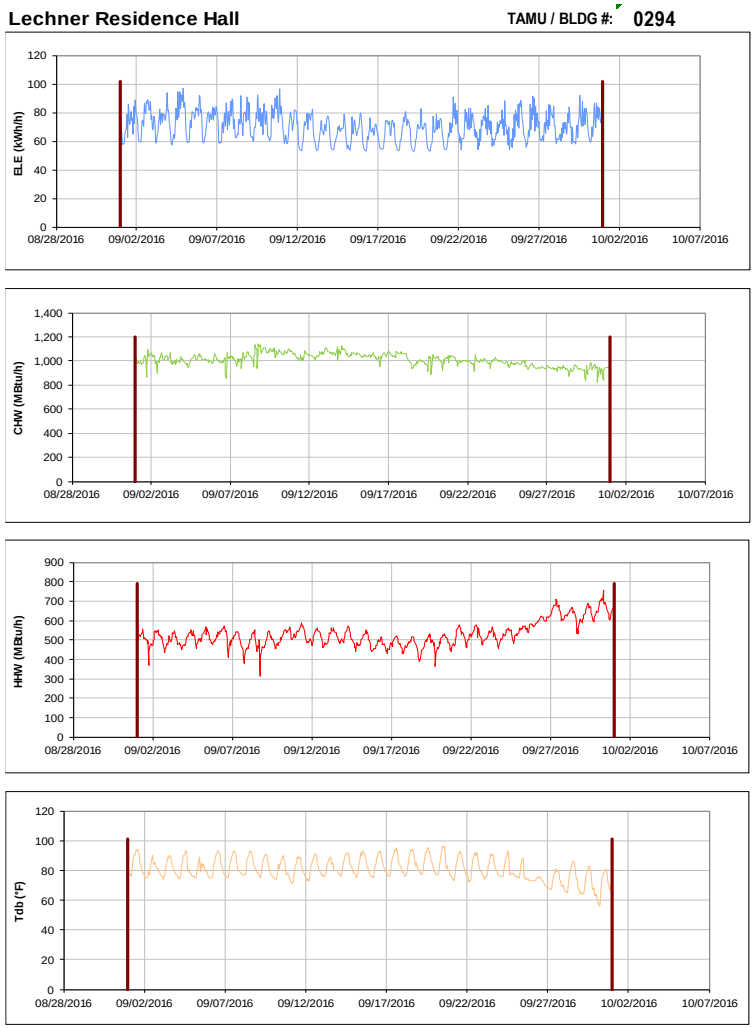


Figure III-7 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lechner Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

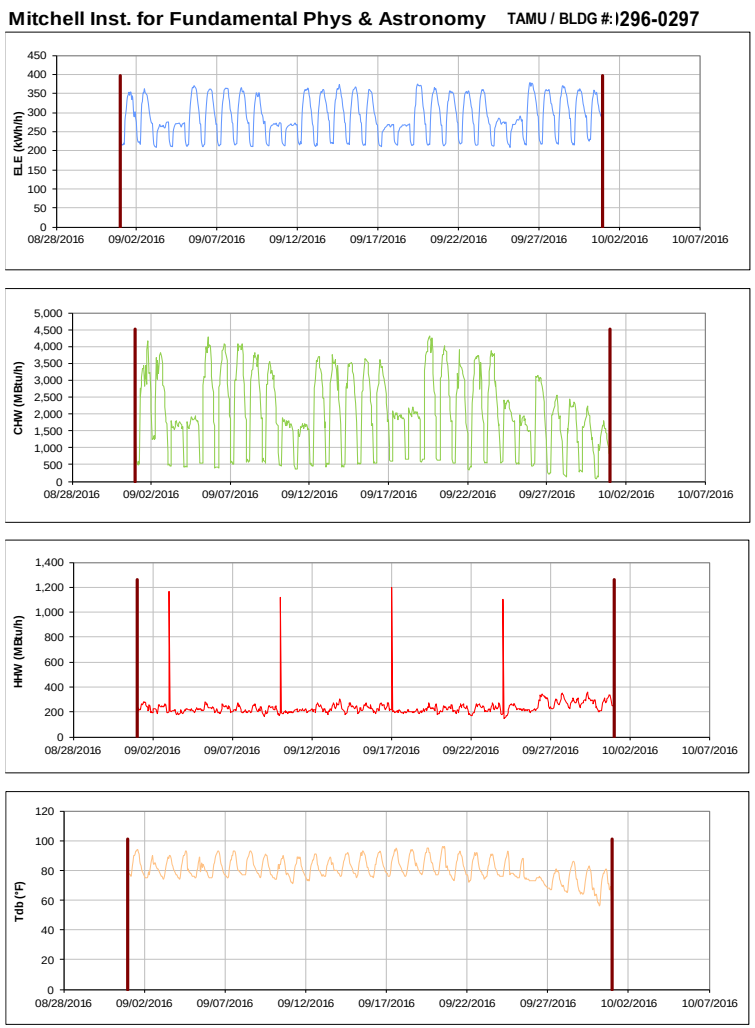


Figure III-8 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mitchell Inst. for Fundamental Phys & Astronomy during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

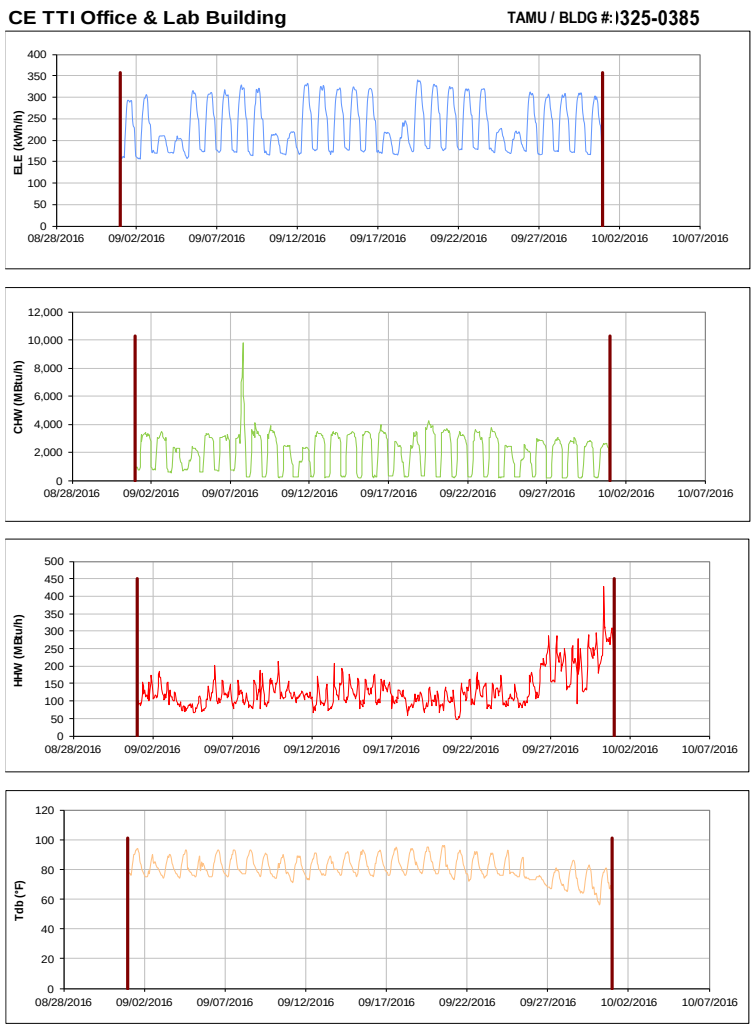


Figure III-9 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for CE TTI Office & Lab Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

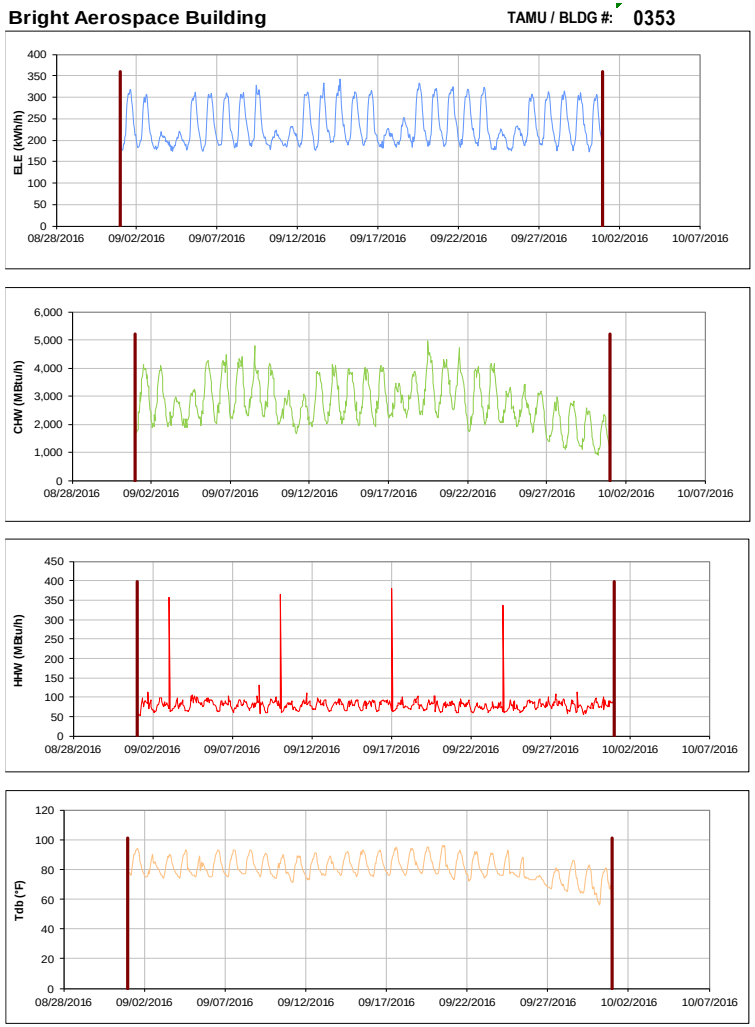


Figure III-10 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Aerospace Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

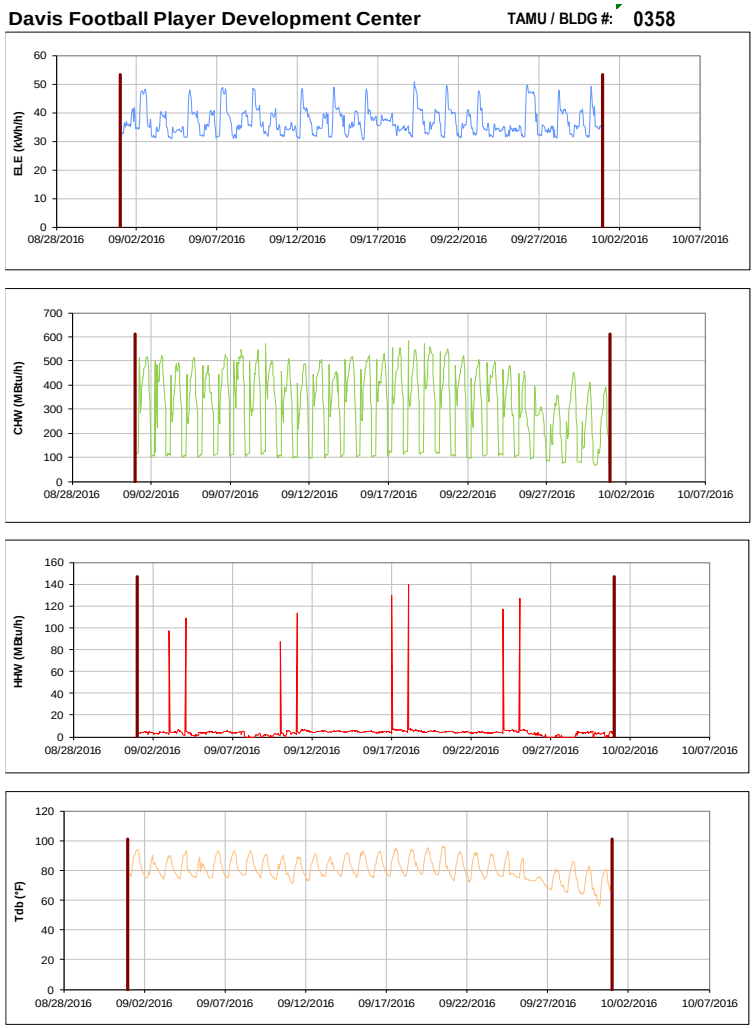


Figure III-11 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis Football Player Development Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

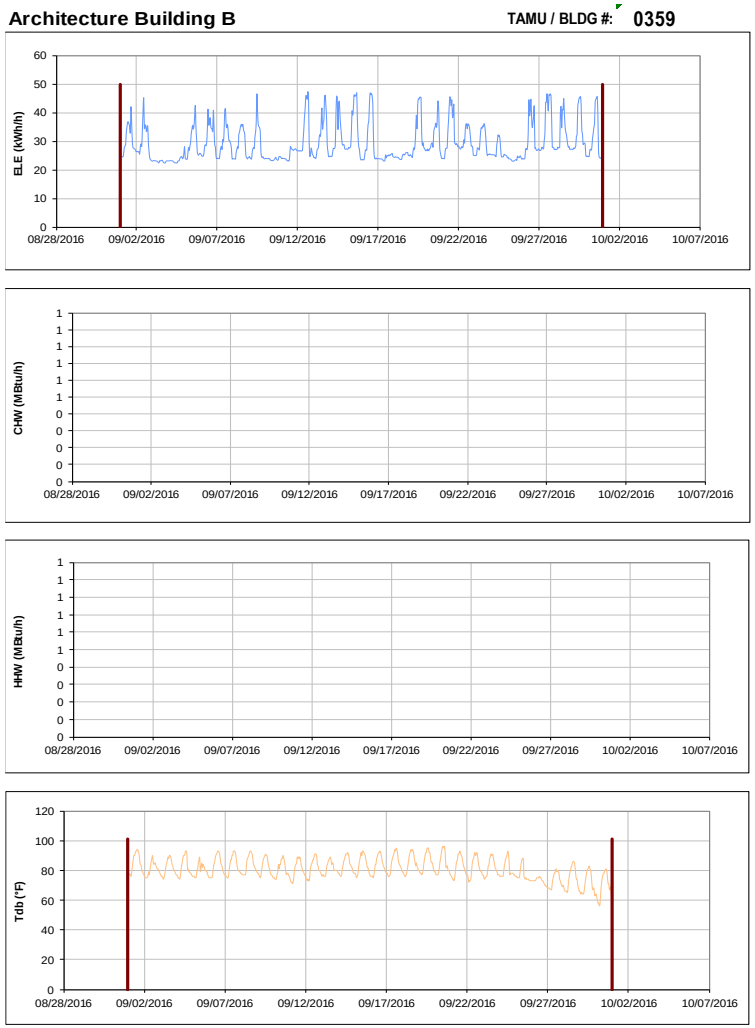


Figure III-12 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

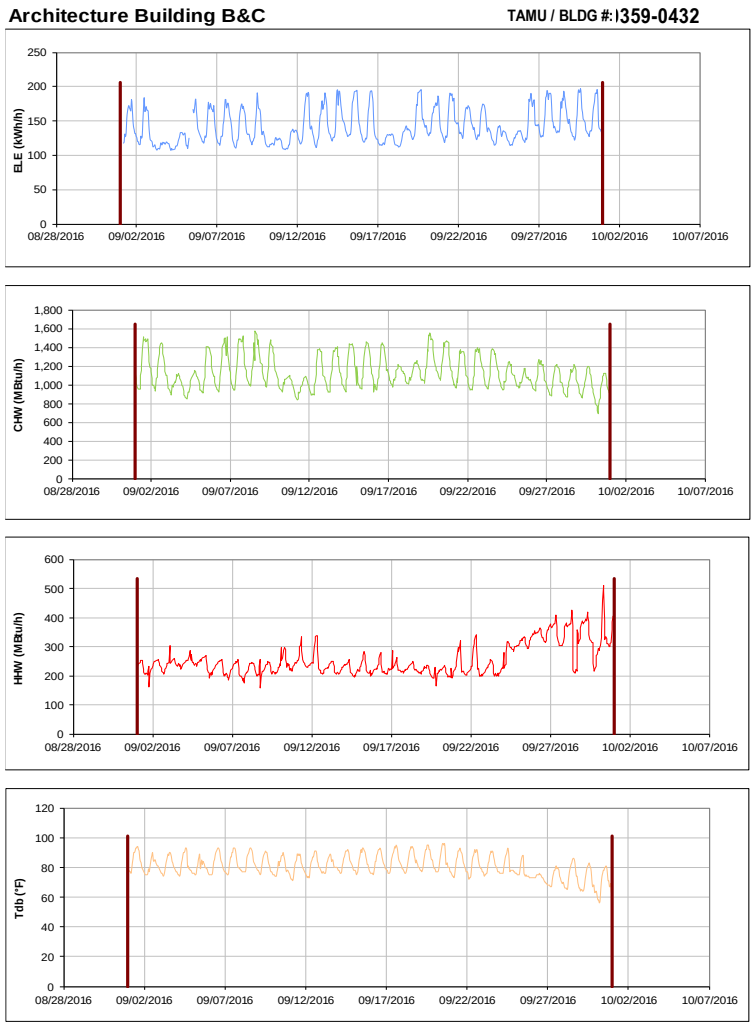


Figure III-13 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building B&C during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

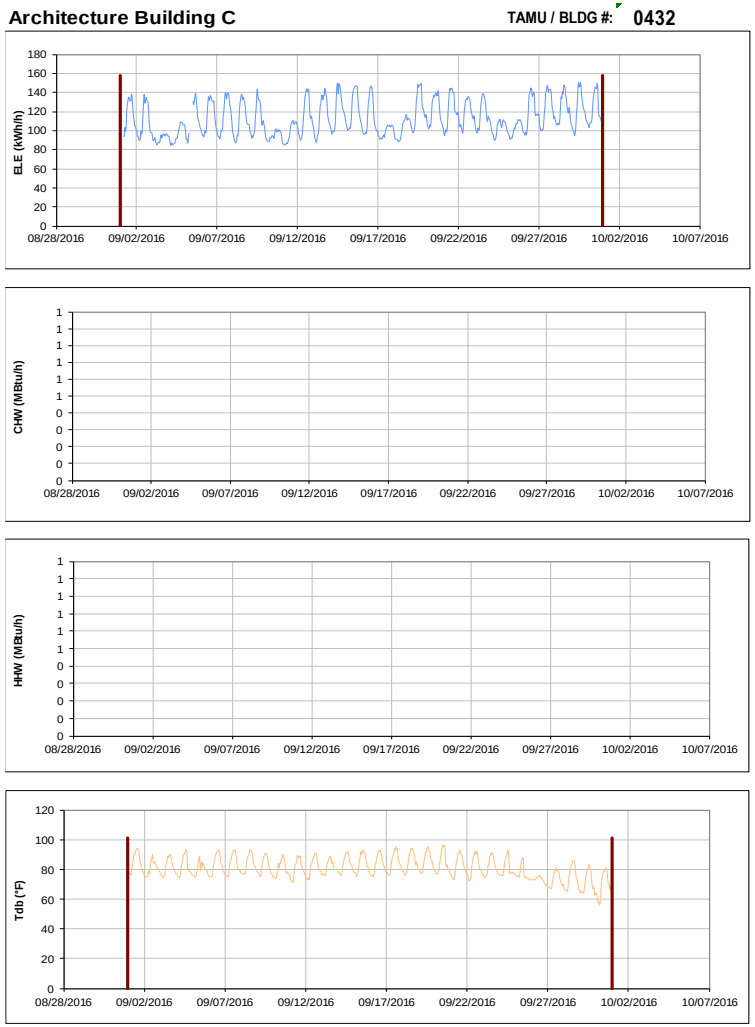


Figure III-14 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Architecture Building C during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

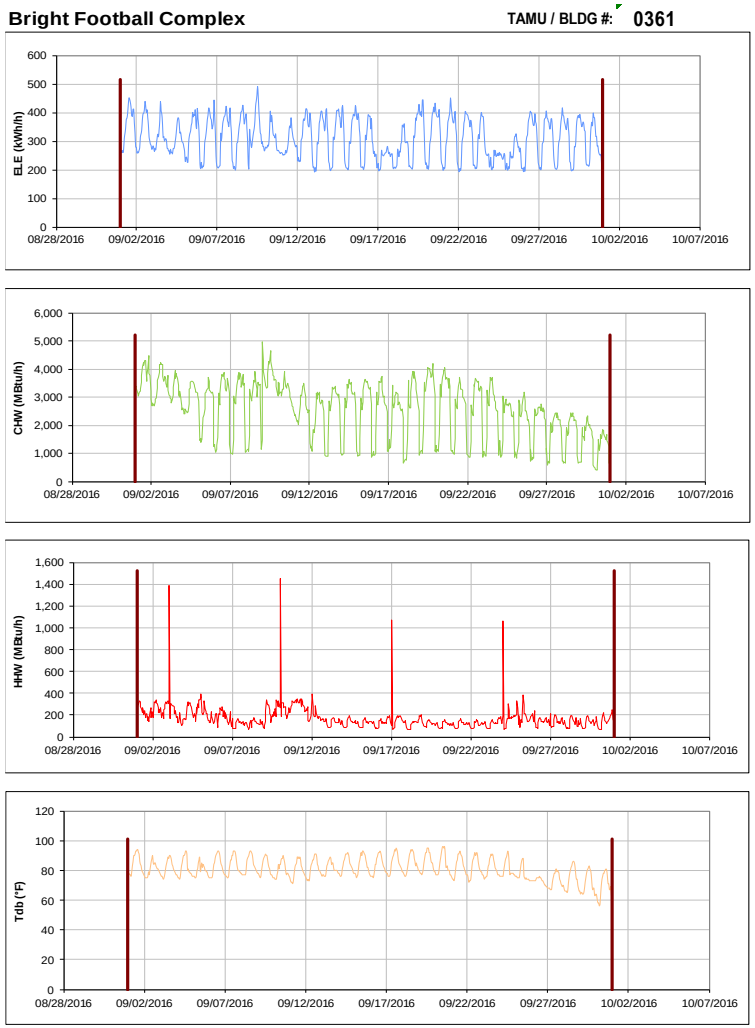


Figure III-15 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bright Football Complex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

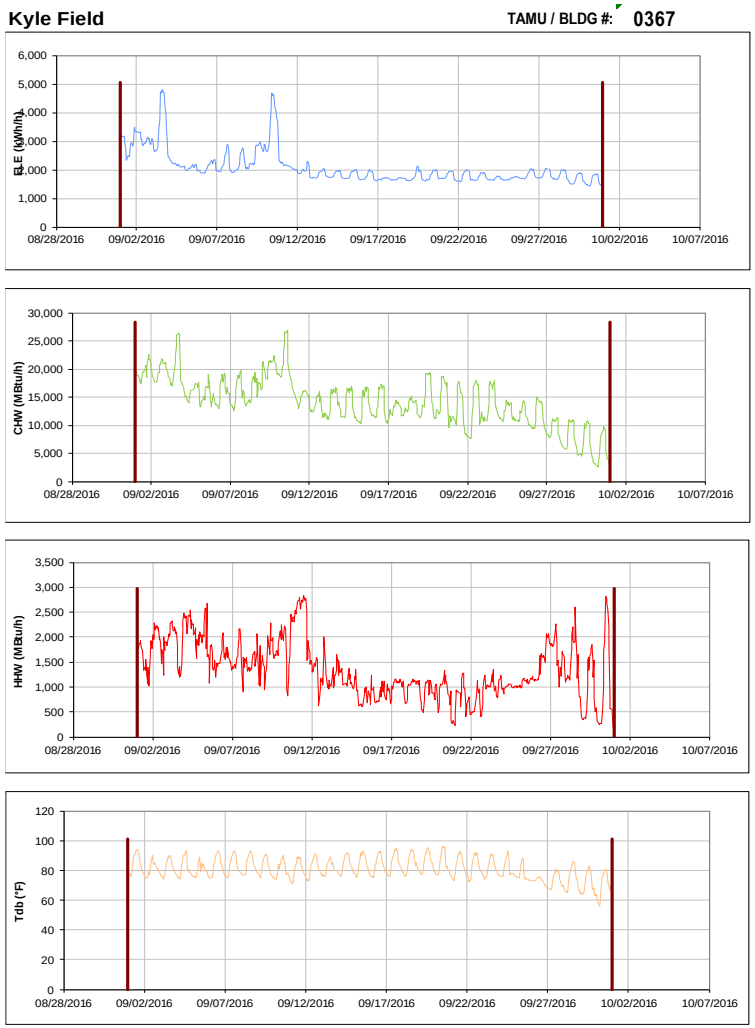


Figure III-16 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kyle Field during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

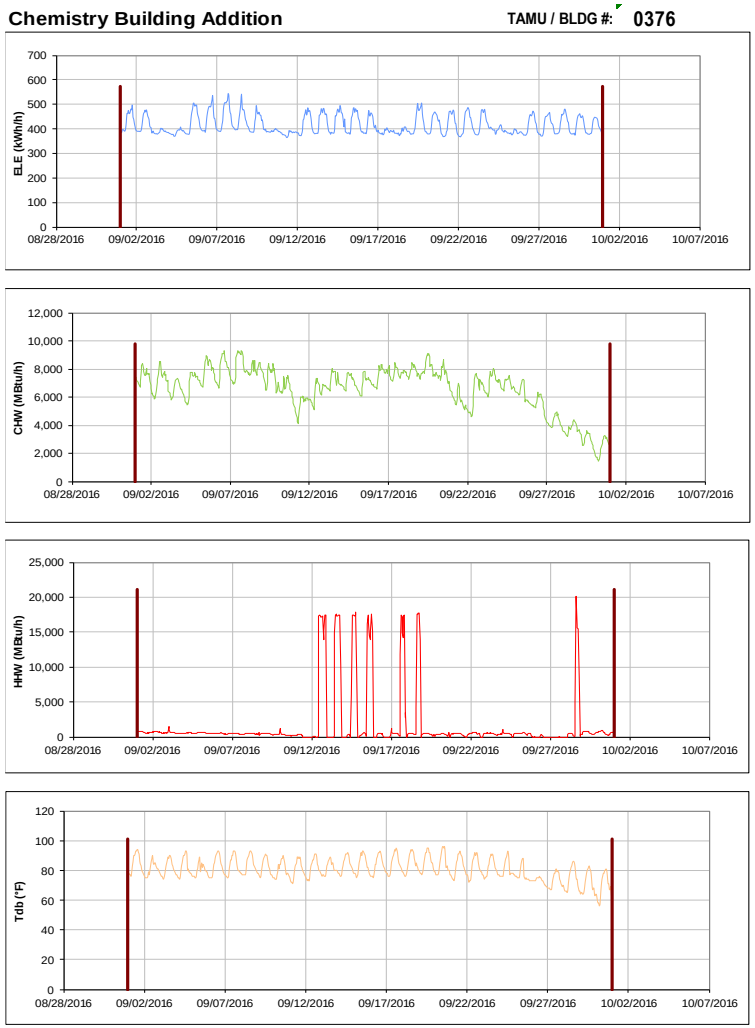


Figure III-17 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building Addition during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

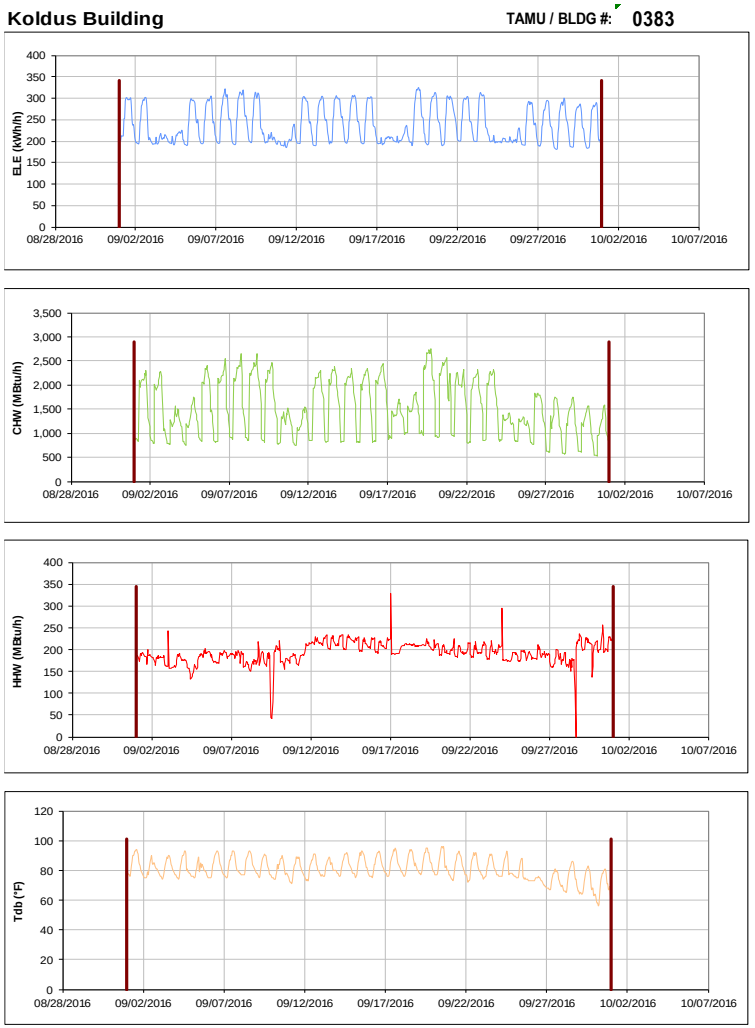


Figure III-18 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Koldus Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

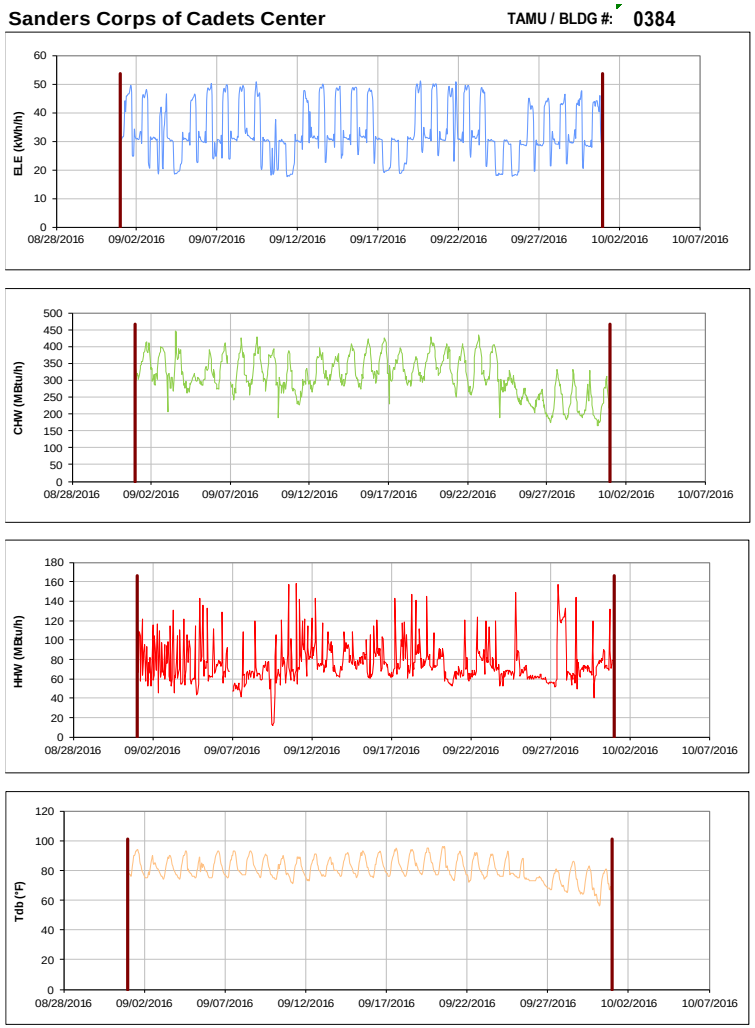


Figure III-19 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sanders Corps of Cadets Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

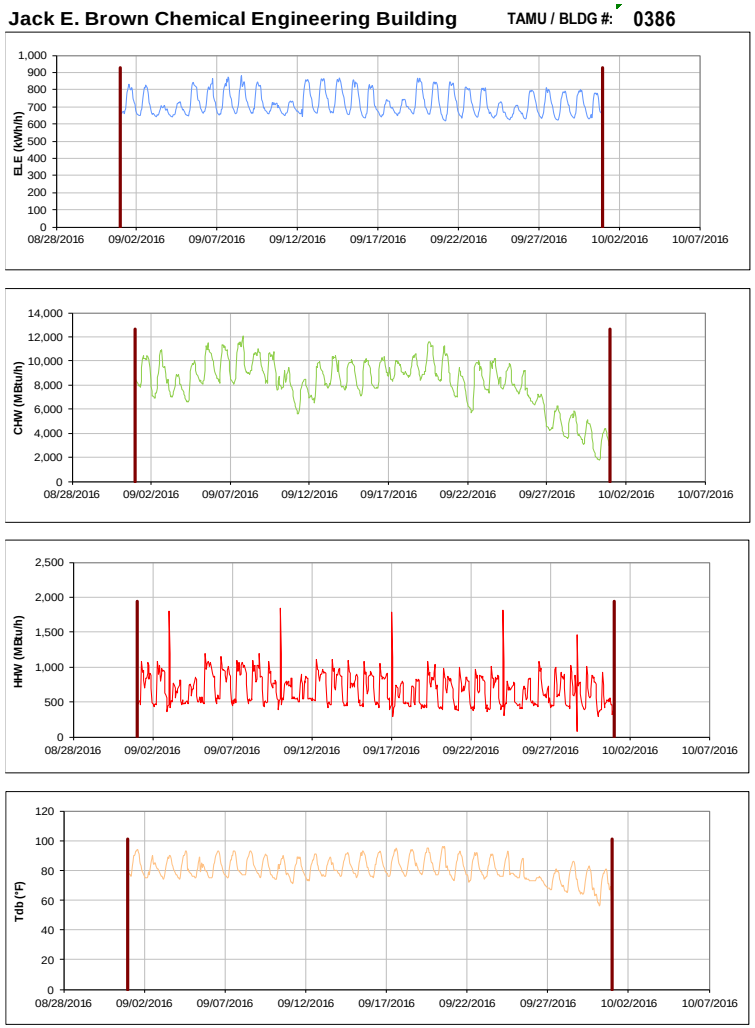


Figure III-20 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Jack E. Brown Chemical Engineering Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

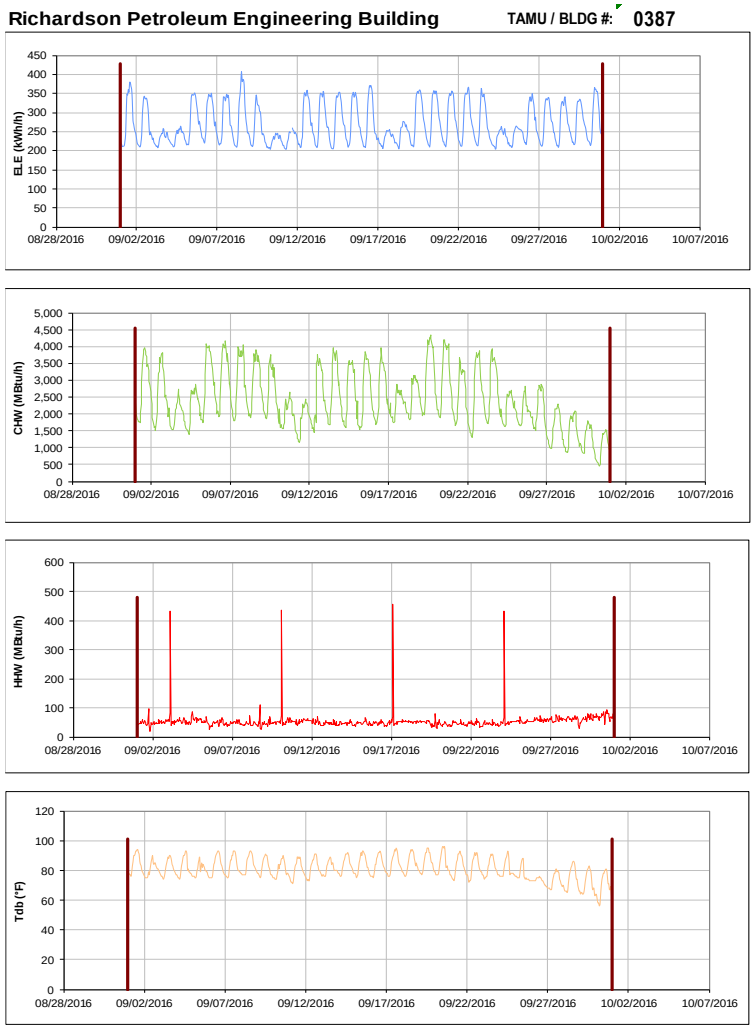


Figure III-21 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Richardson Petroleum Engineering Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

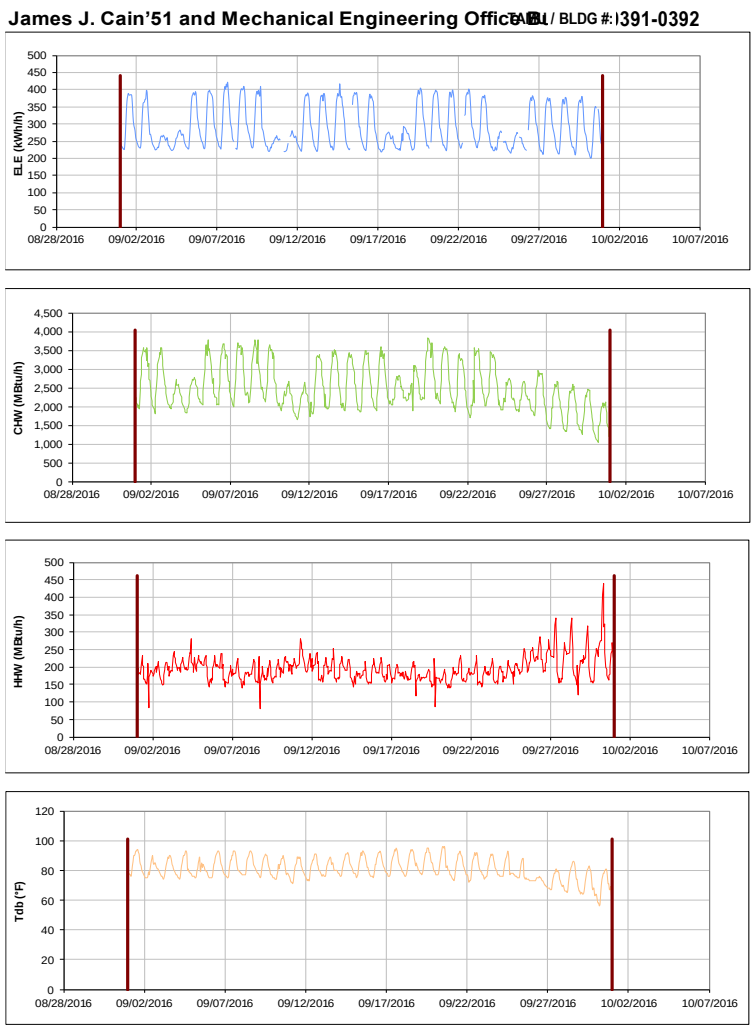


Figure III-22 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for James J. Cain'51 and Mechanical Engineering Office Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station,

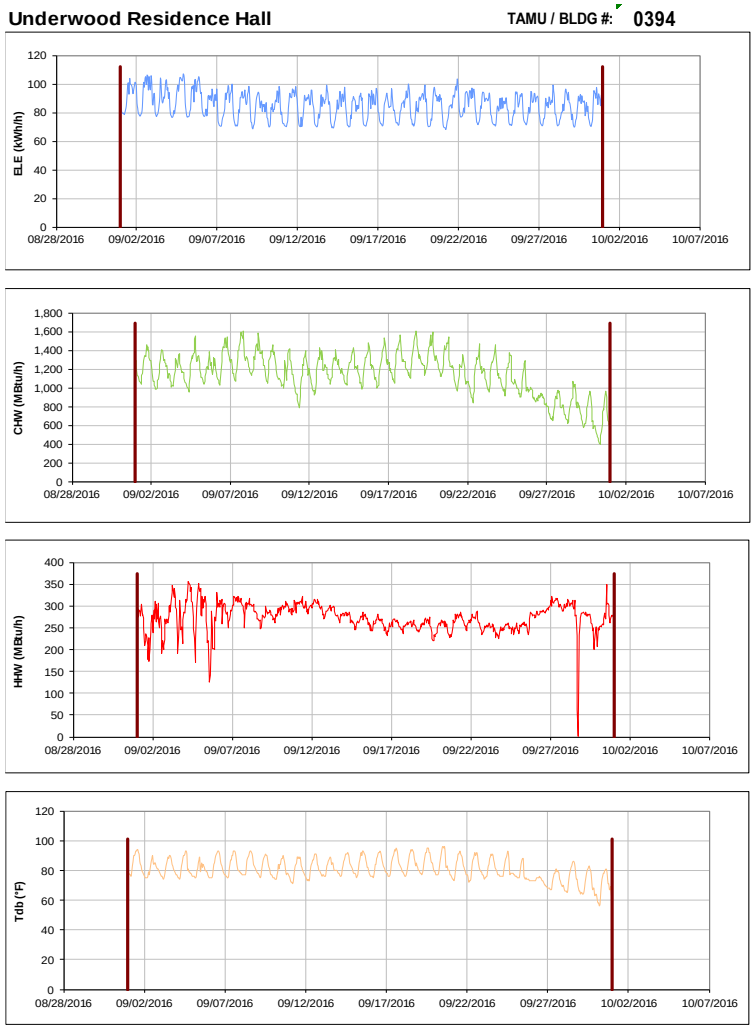


Figure III-23 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Underwood Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

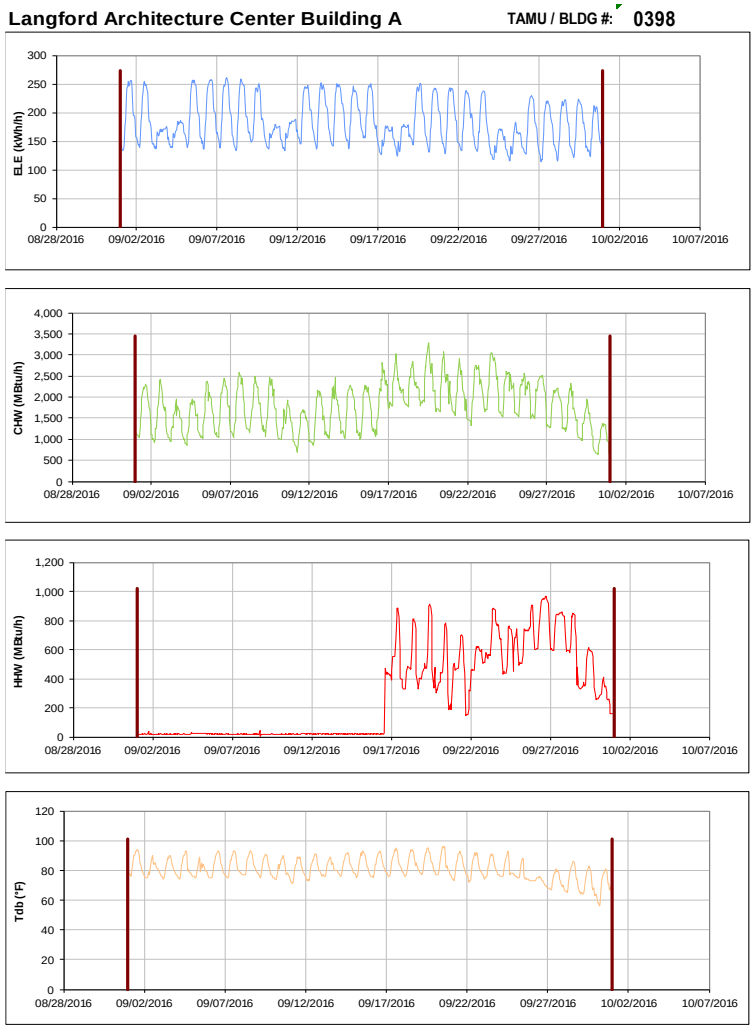


Figure III-24 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Langford Architecture Center Building A during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

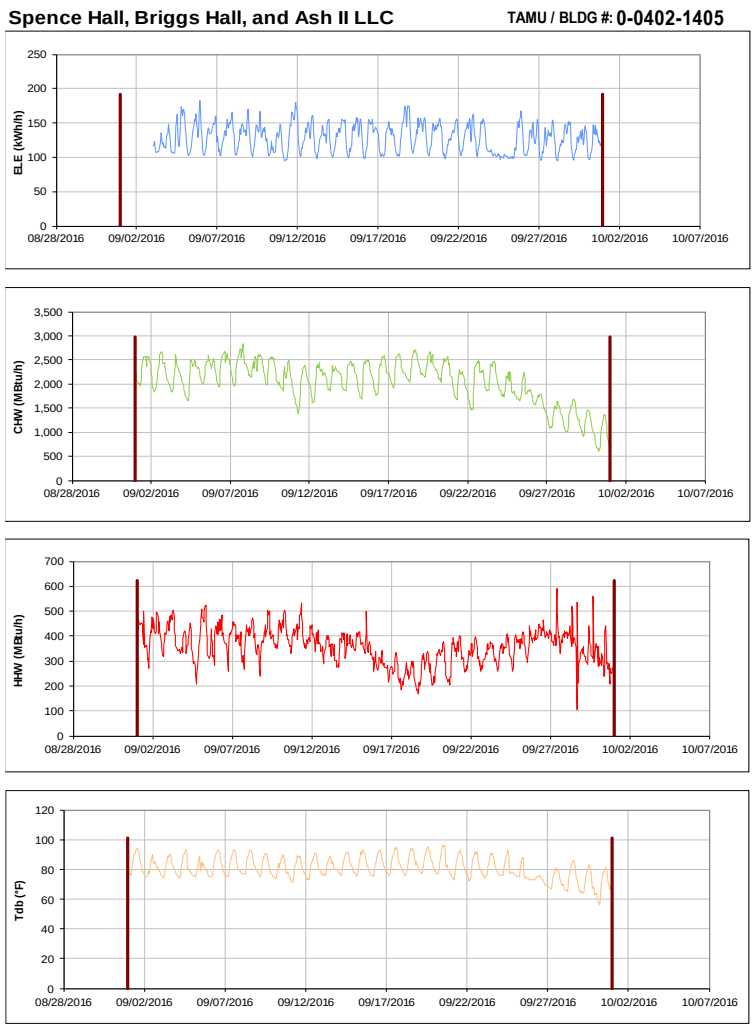


Figure III-25 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall, Briggs Hall, and Ash II LLC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

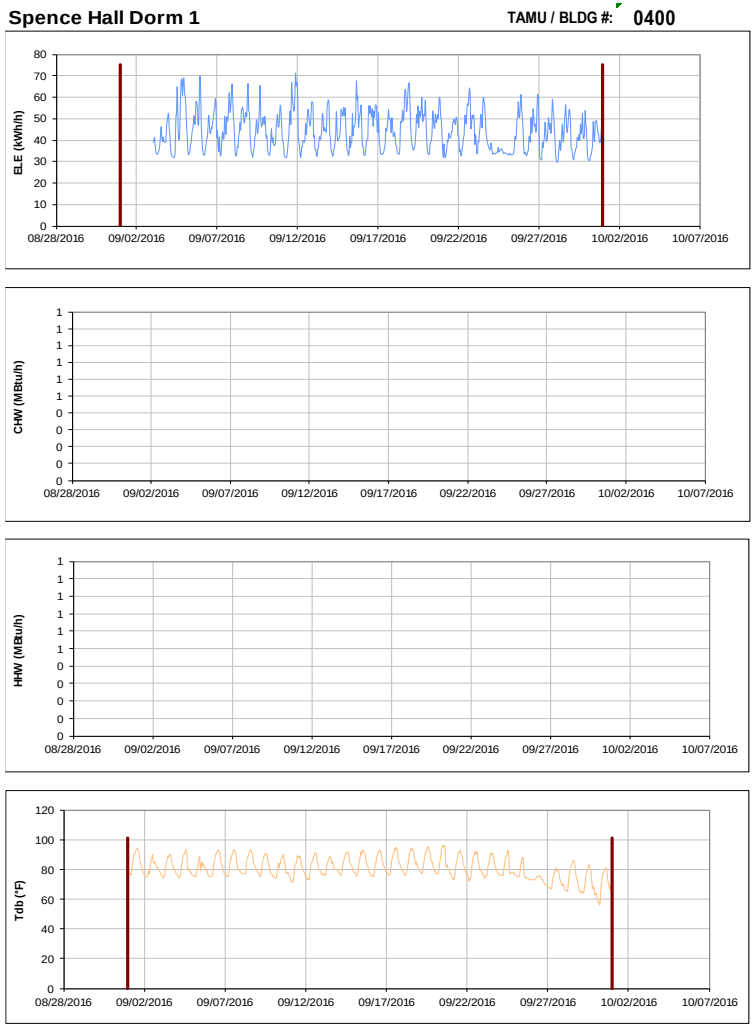


Figure III-26 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Spence Hall Dorm 1 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

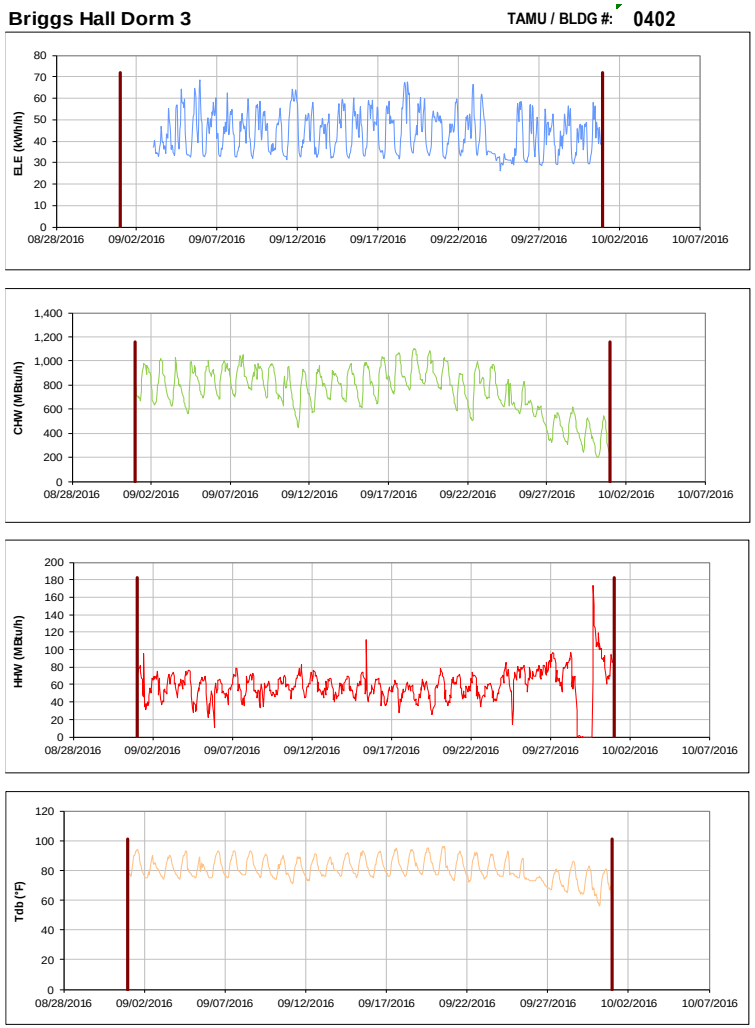


Figure III-27 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Briggs Hall Dorm 3 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

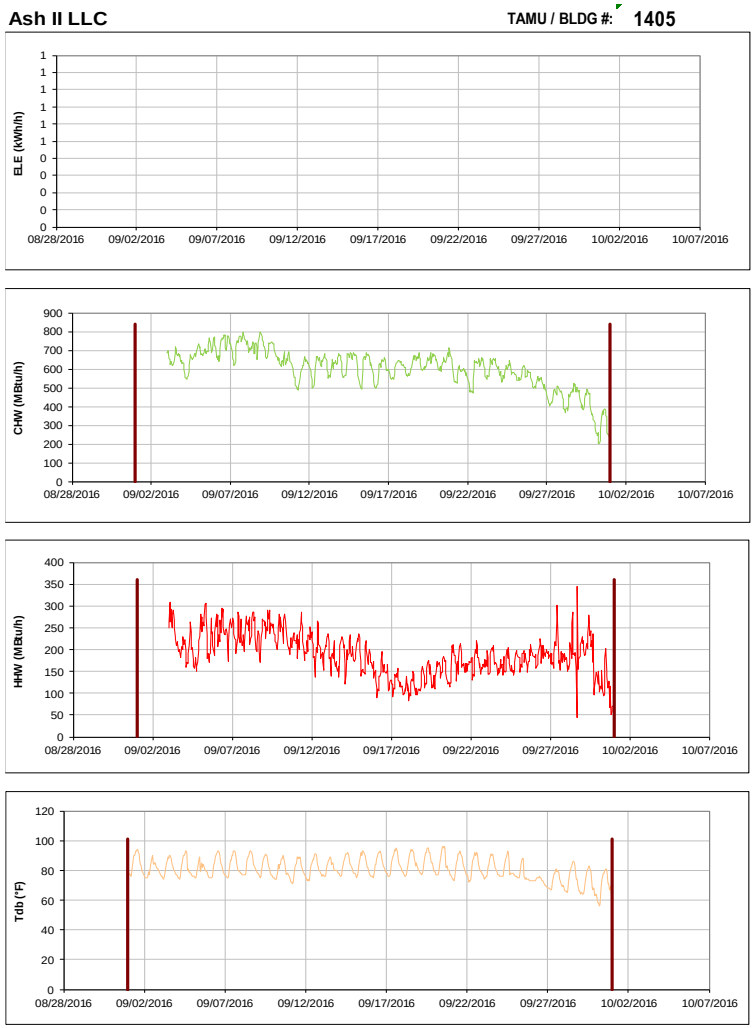


Figure III-28 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Ash II LLC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

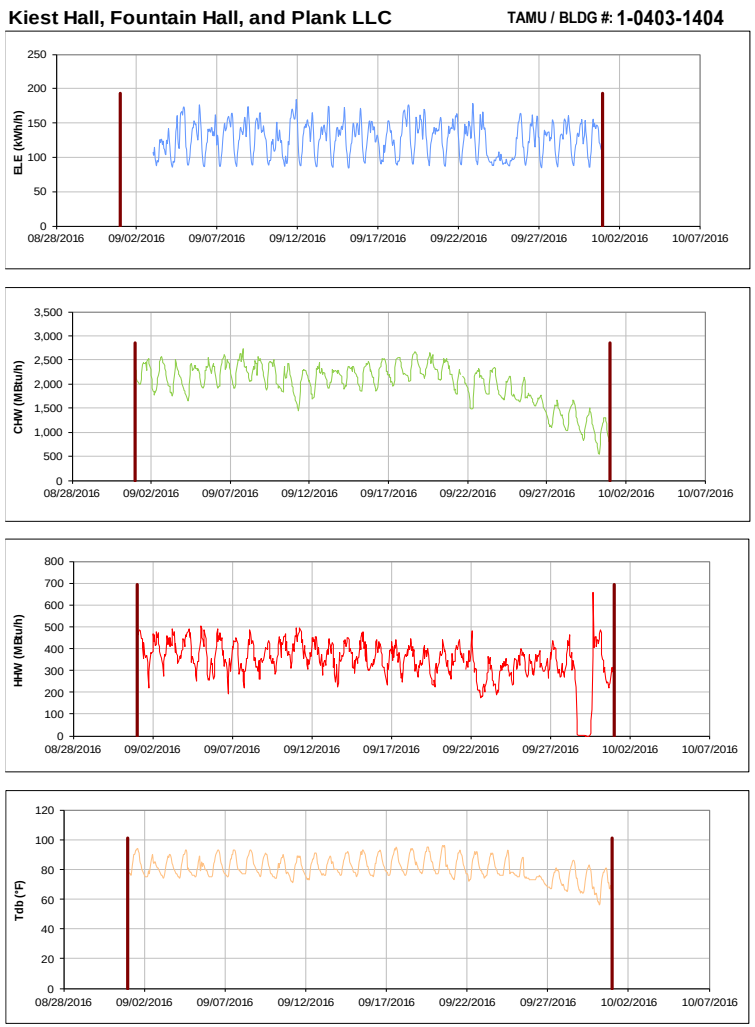


Figure III-29 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall, Fountain Hall, and Plank LLC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

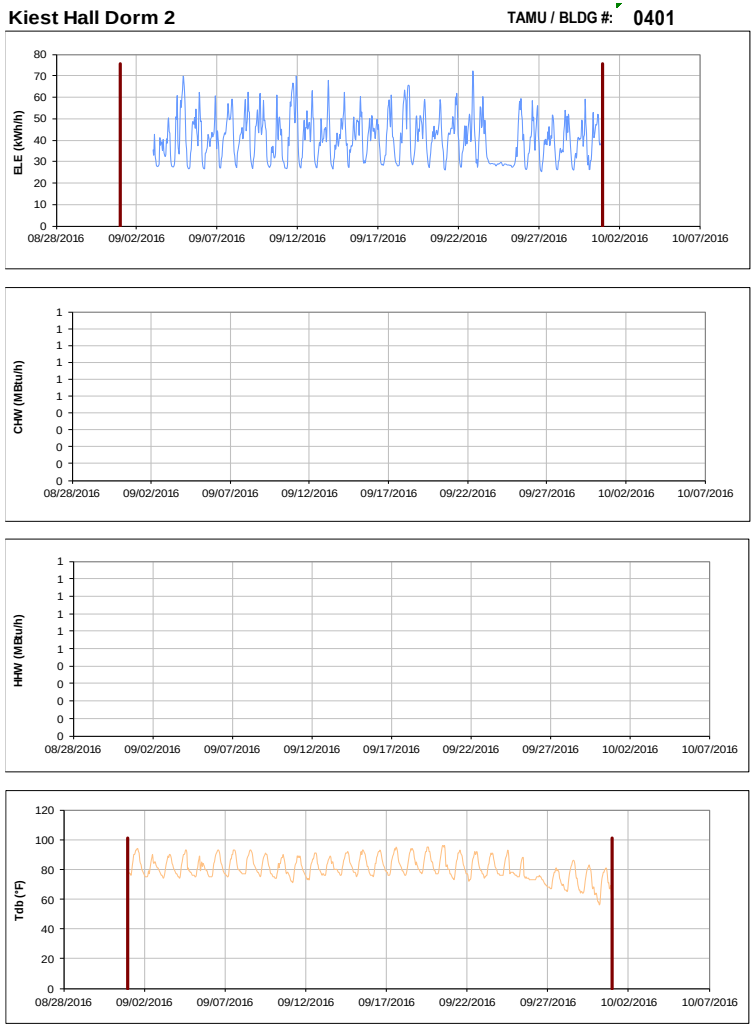


Figure III-30 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kiest Hall Dorm 2 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

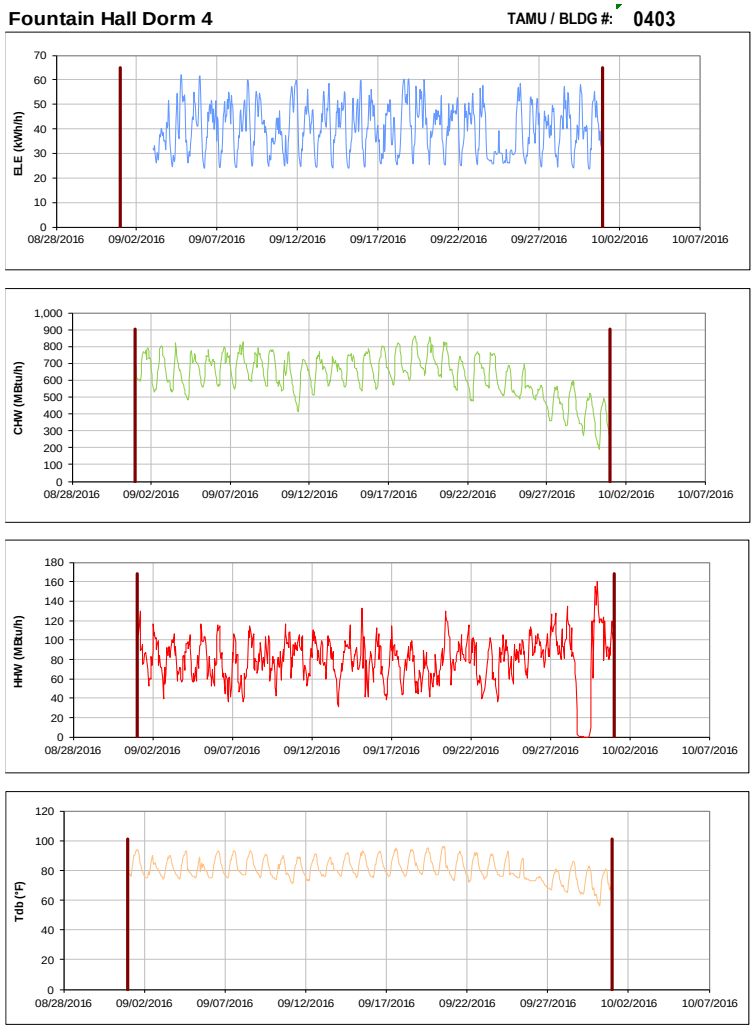


Figure III-31 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fountain Hall Dorm 4 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

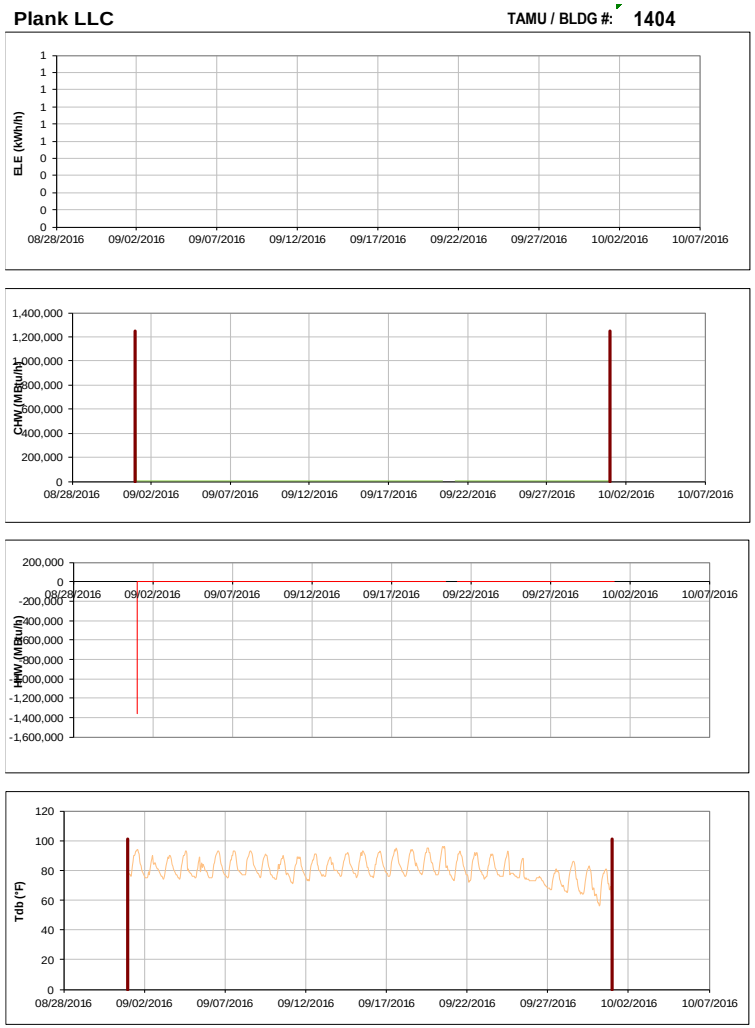


Figure III-32 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Plank LLC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

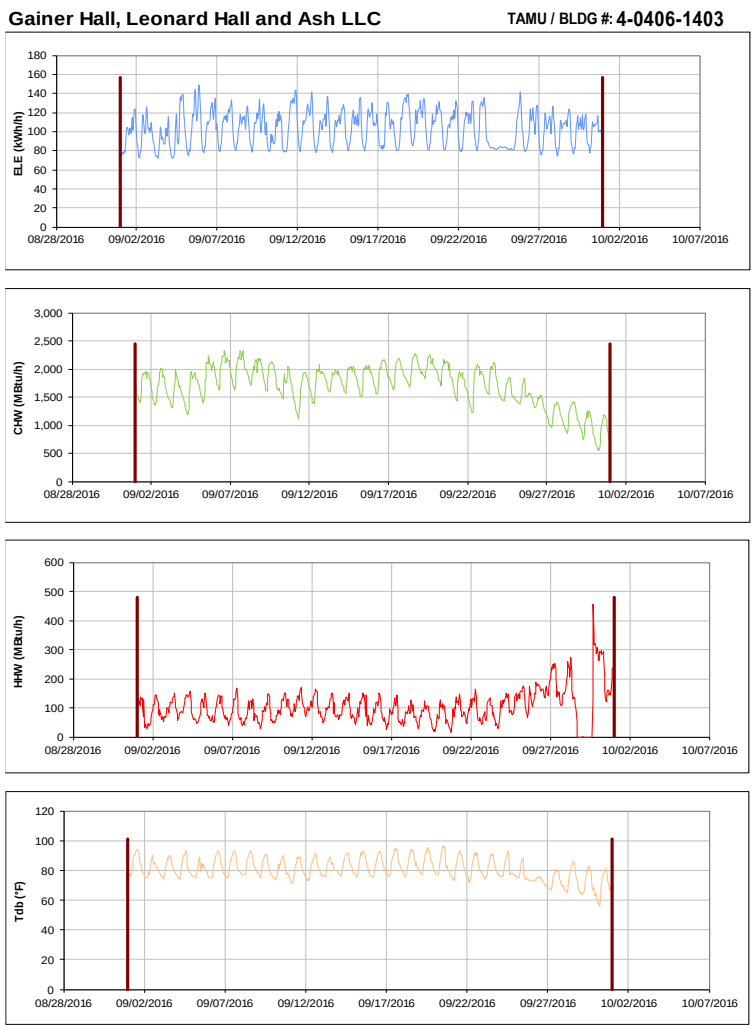


Figure III-33 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall, Leonard Hall and Ash LLC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

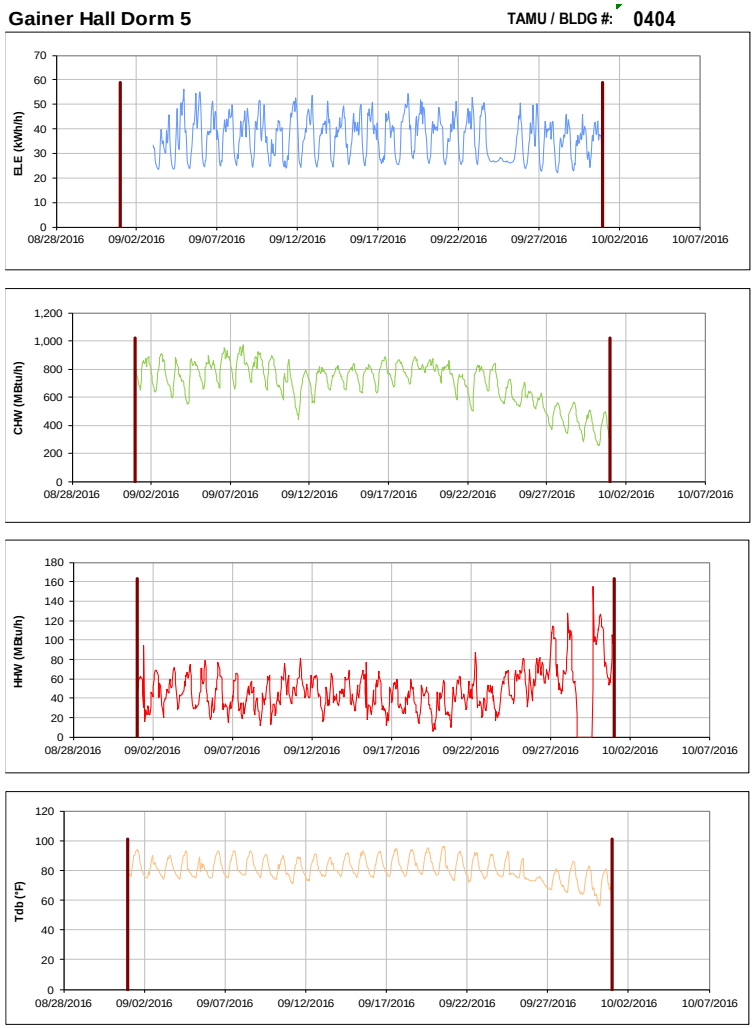


Figure III-34 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gainer Hall Dorm 5 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

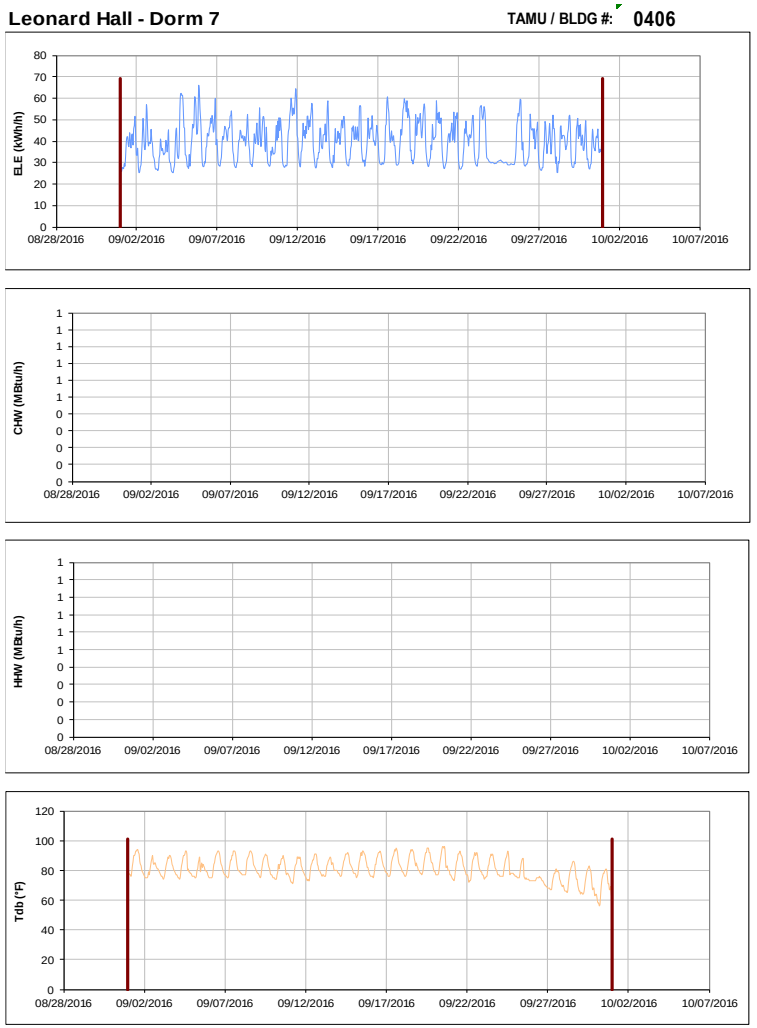


Figure III-35 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Leonard Hall - Dorm 7 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

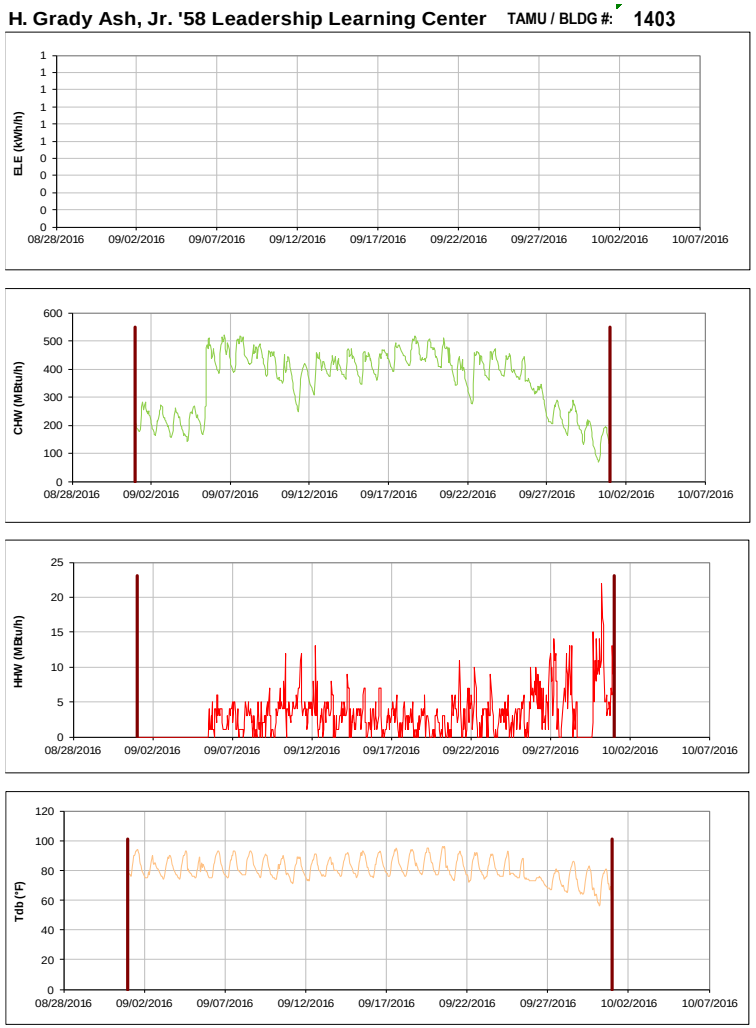


Figure III-36 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for H. Grady Ash, Jr. '58 Leadership Learning Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

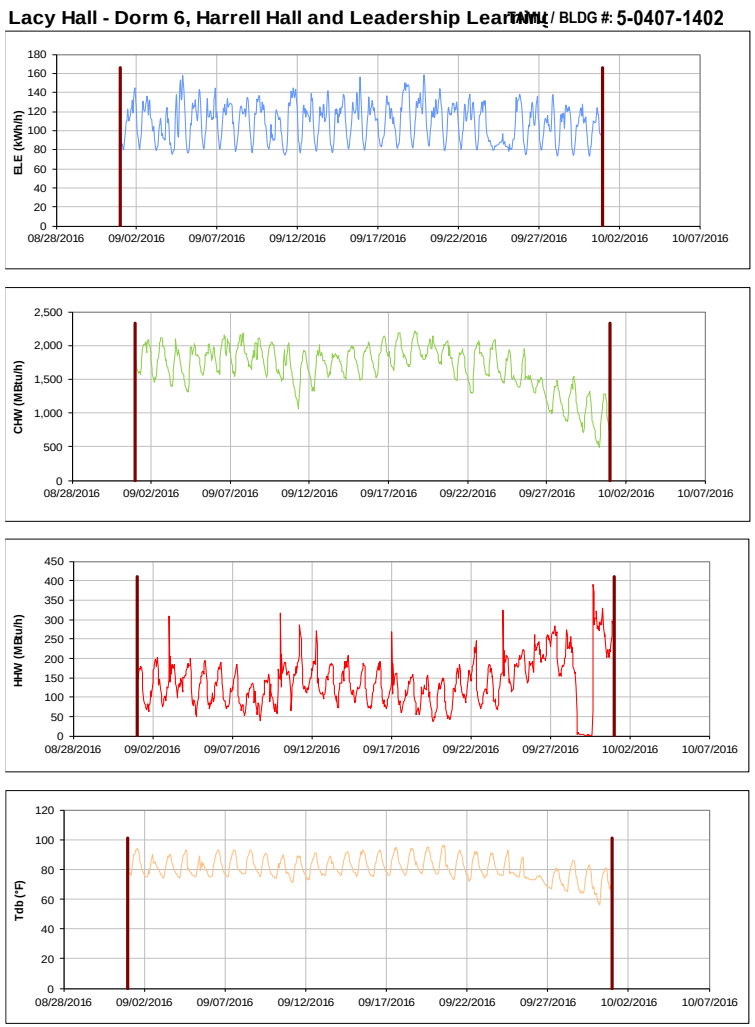


Figure III-37 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

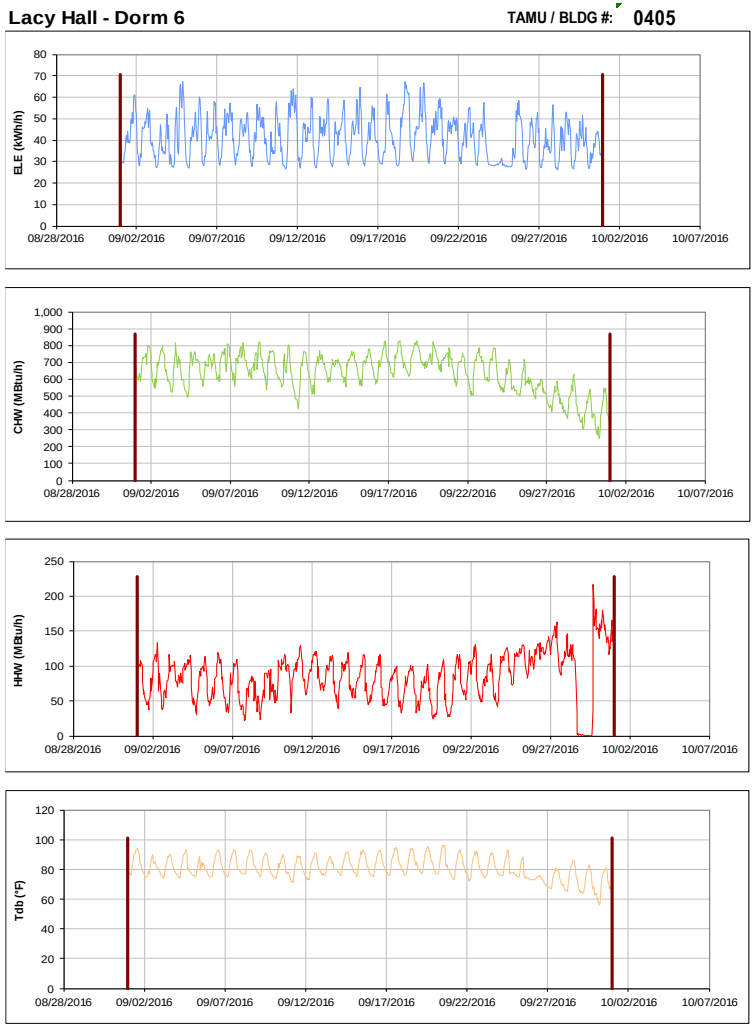


Figure III-38 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Lacy Hall - Dorm 6 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

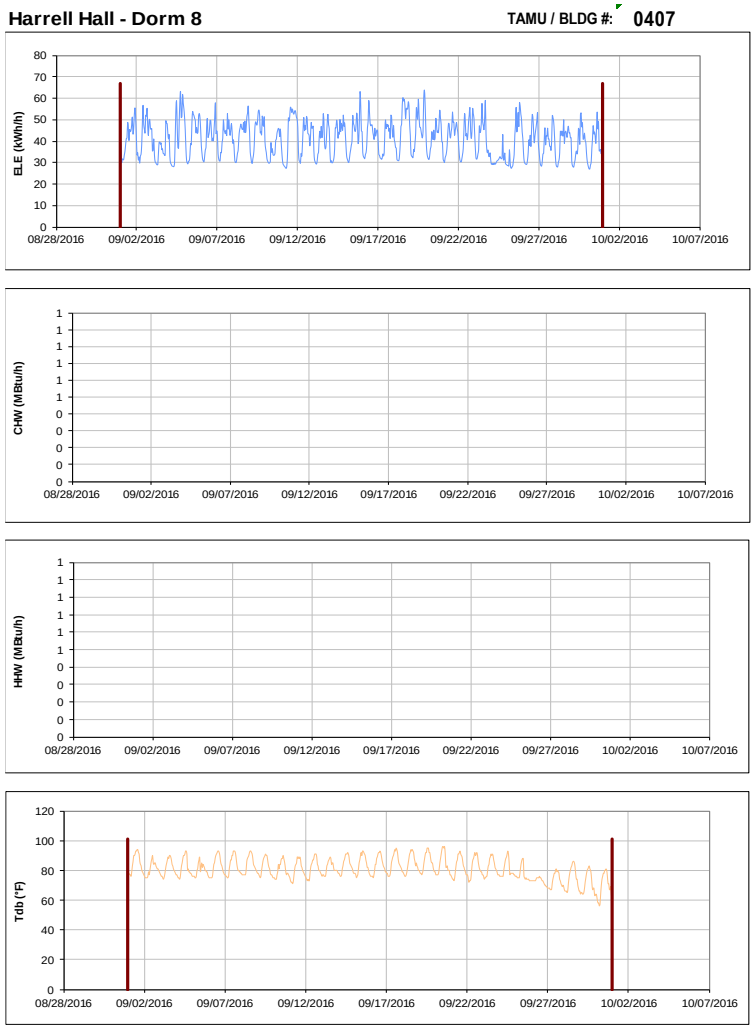


Figure III-39 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrell Hall - Dorm 8 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

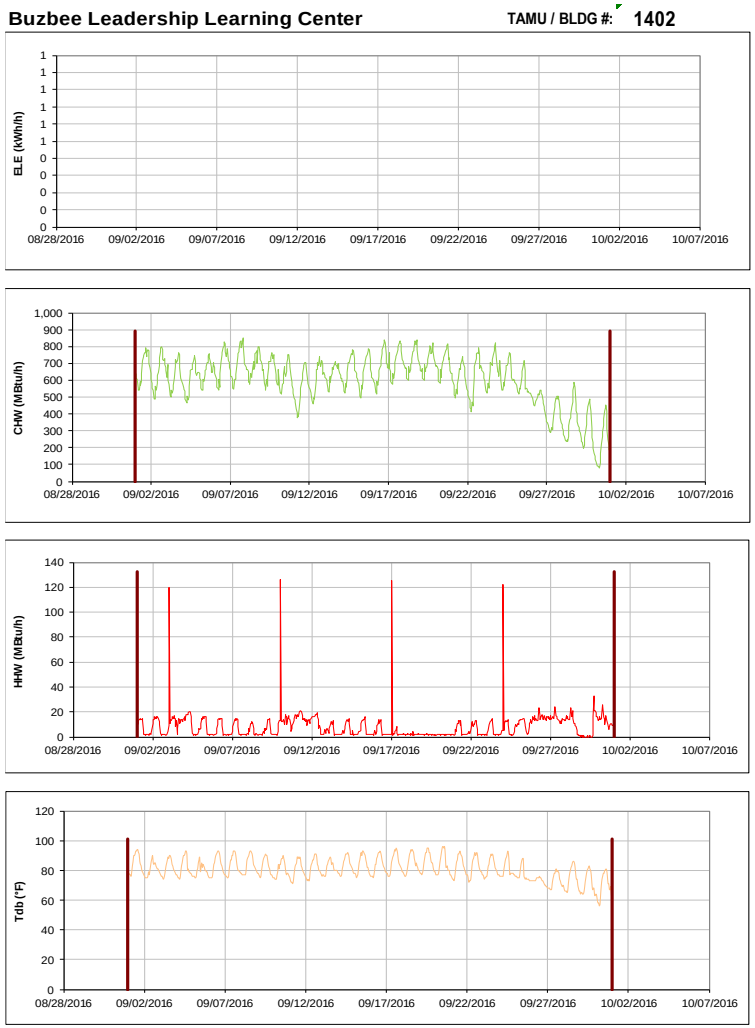


Figure III-40 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Buzbee Leadership Learning Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

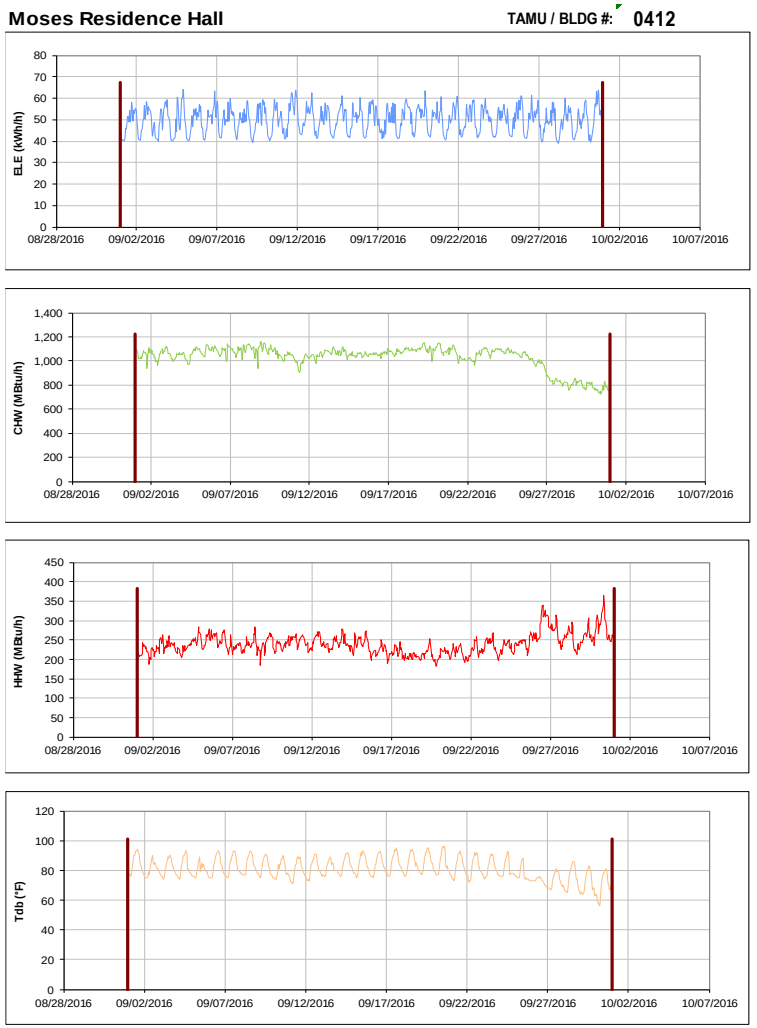


Figure III-41 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Moses Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

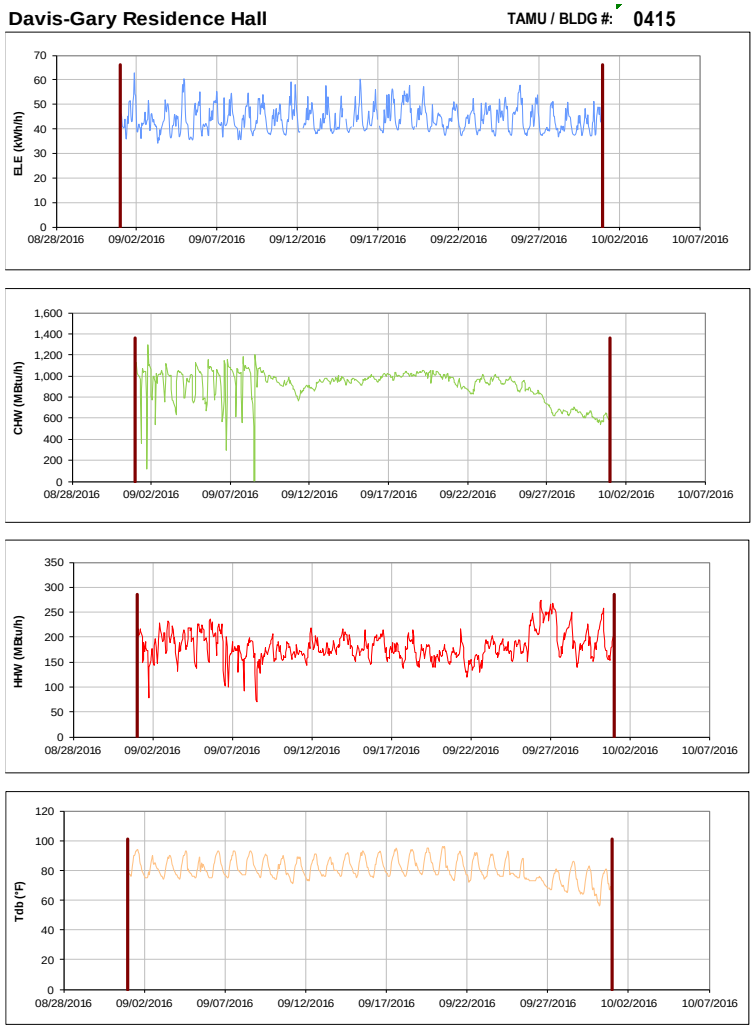


Figure III-42 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Davis-Gary Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

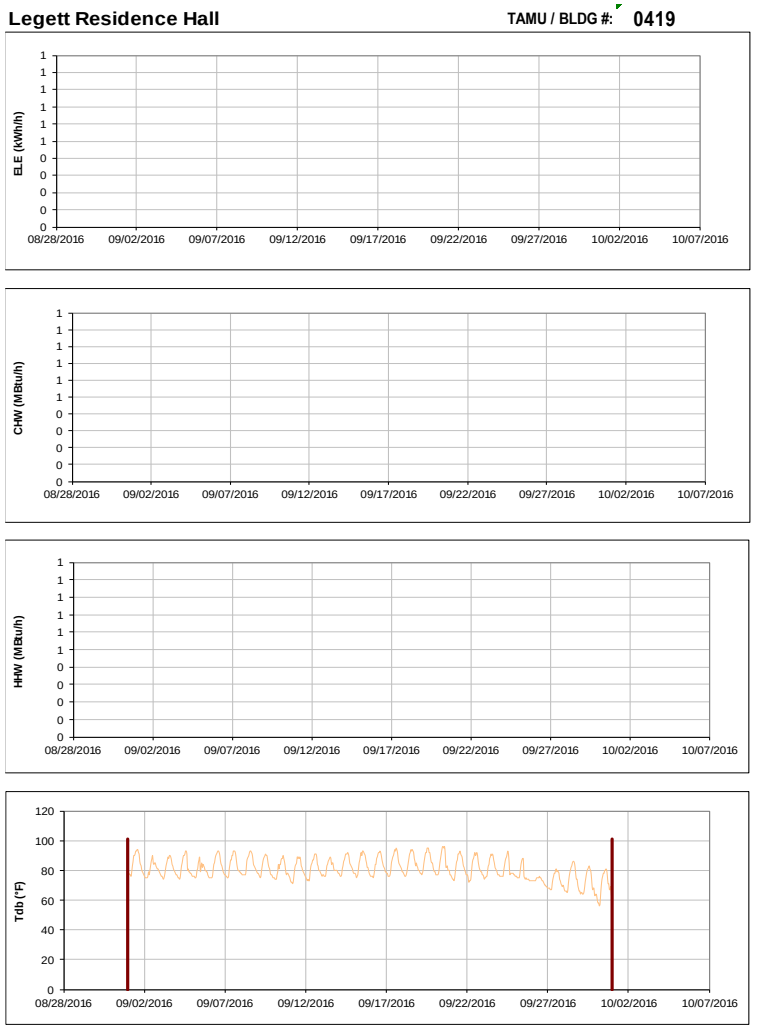


Figure III-43 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Legett Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

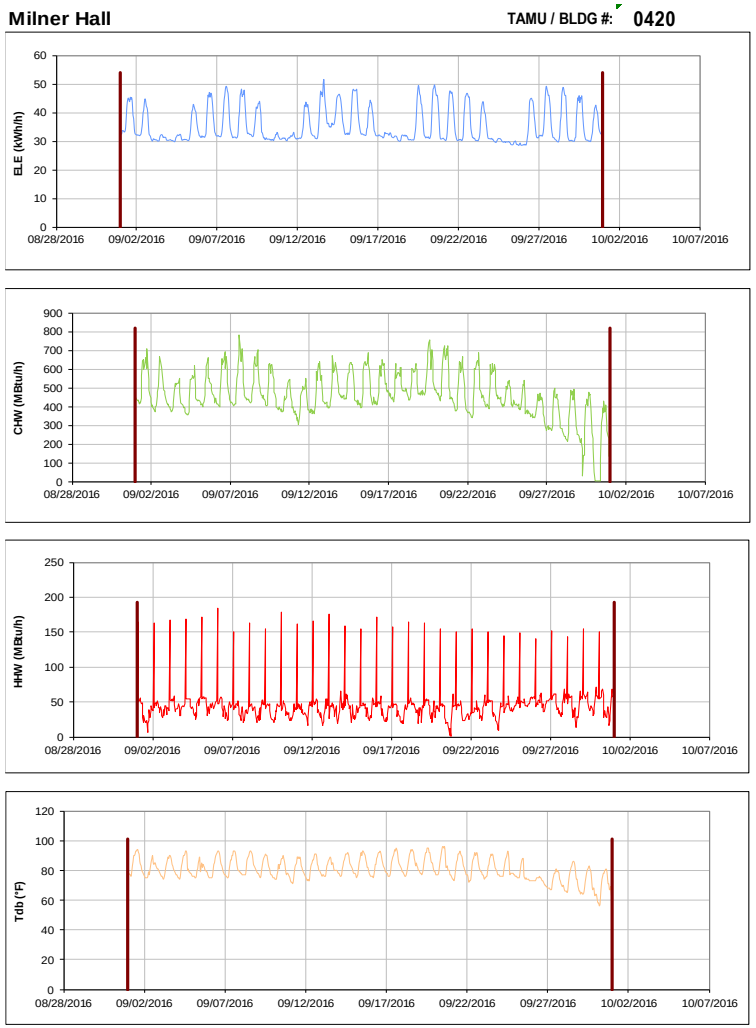


Figure III-44 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Milner Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

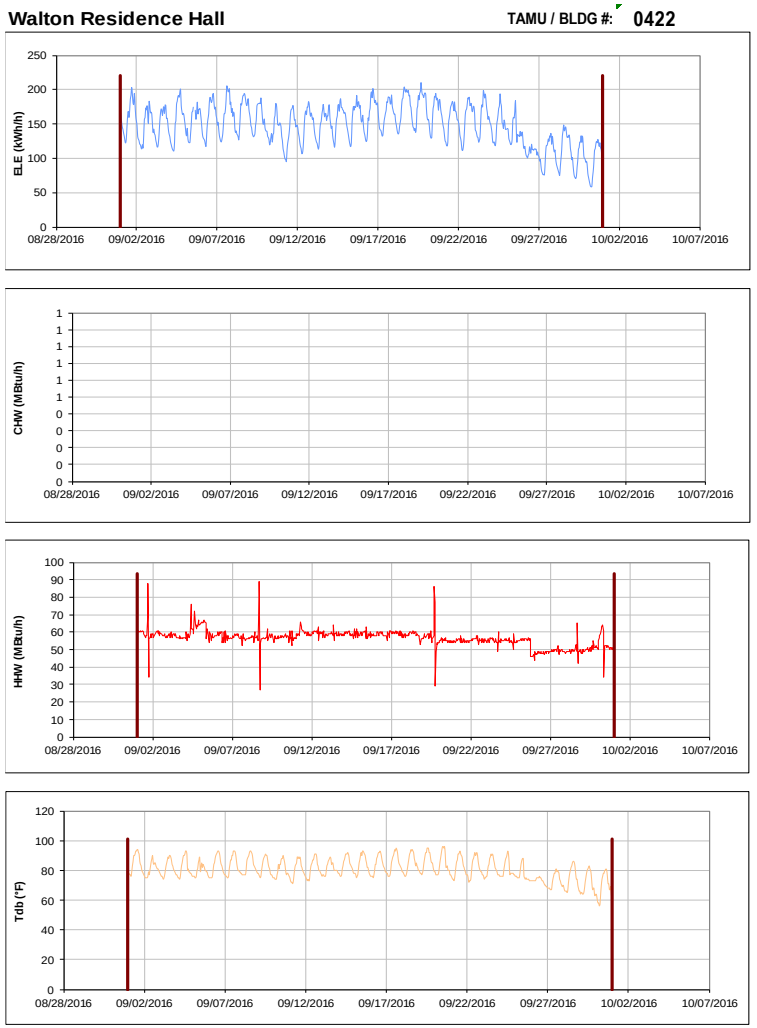


Figure III-45 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Walton Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

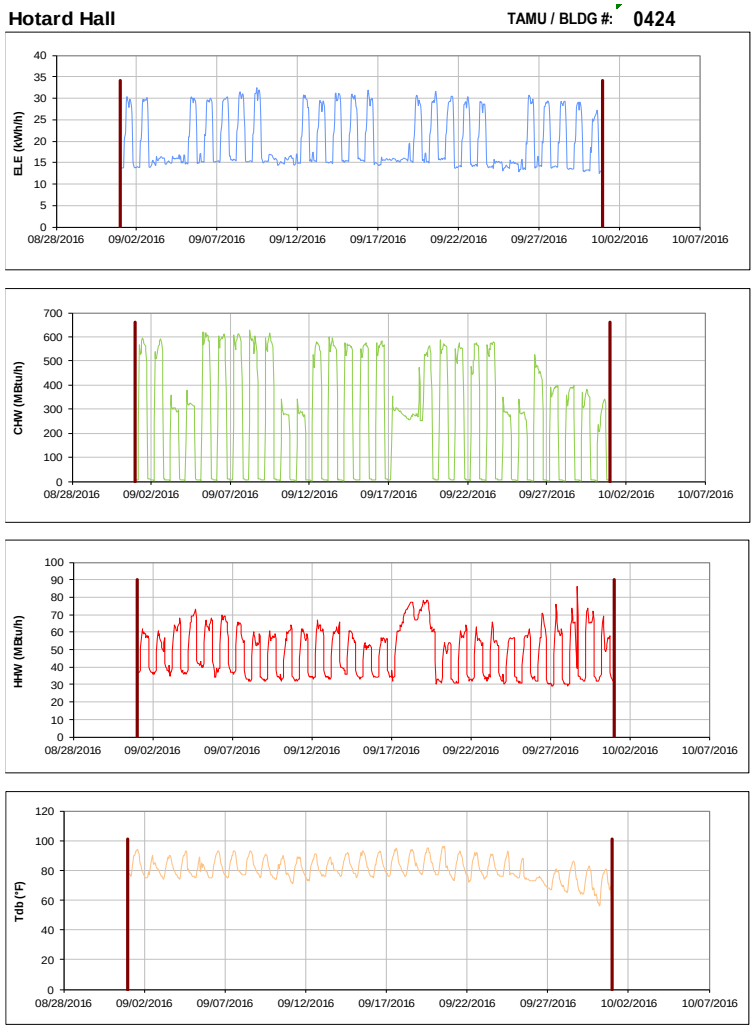


Figure III-46 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hotard Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

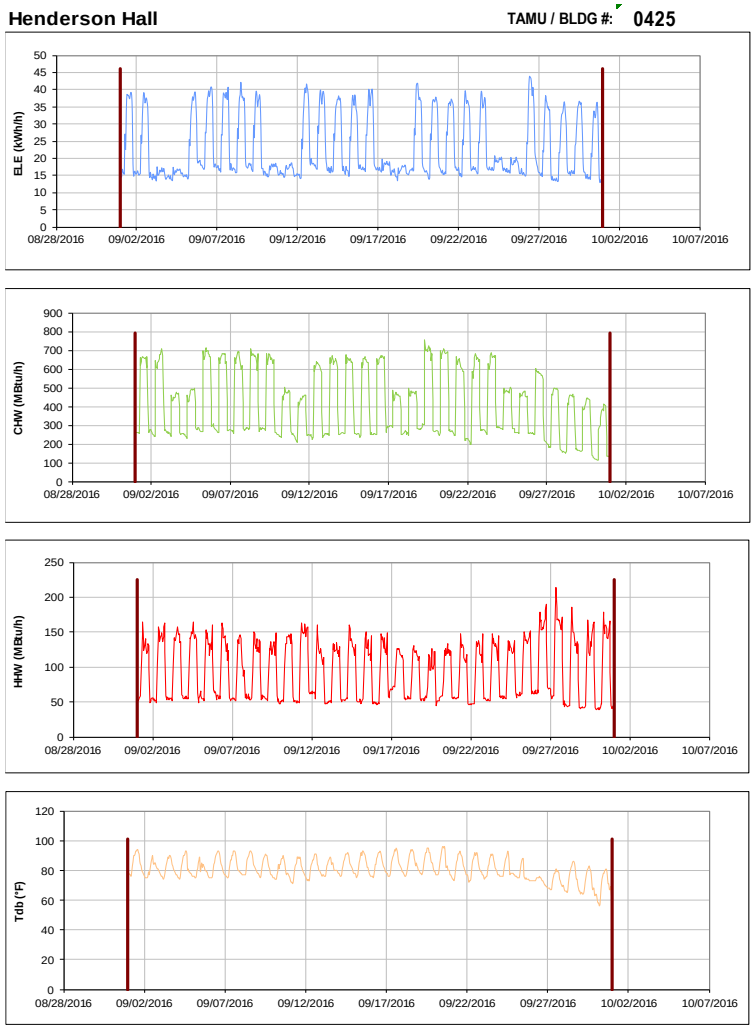


Figure III-47 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Henderson Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

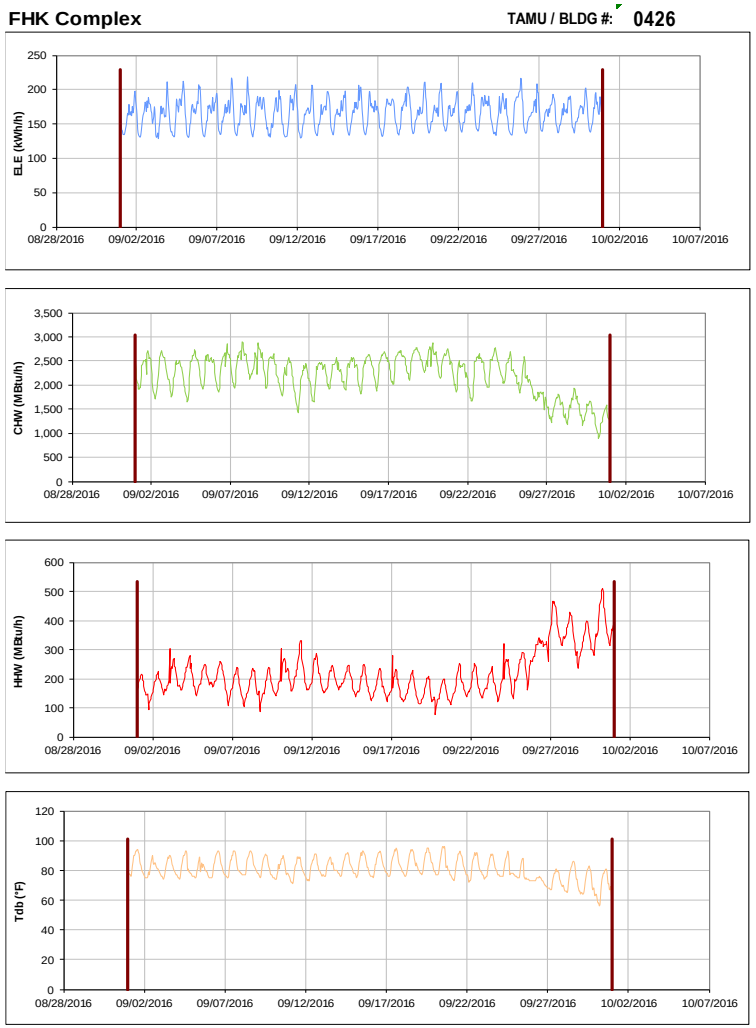


Figure III-48 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for FHK Complex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

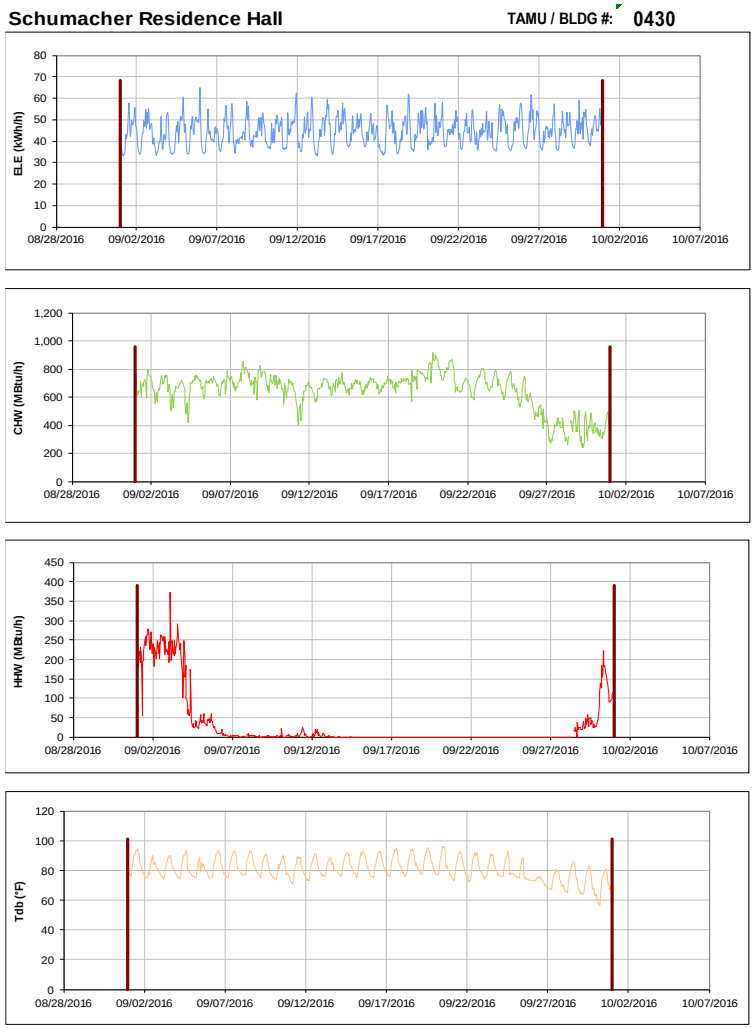


Figure III-49 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Schumacher Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

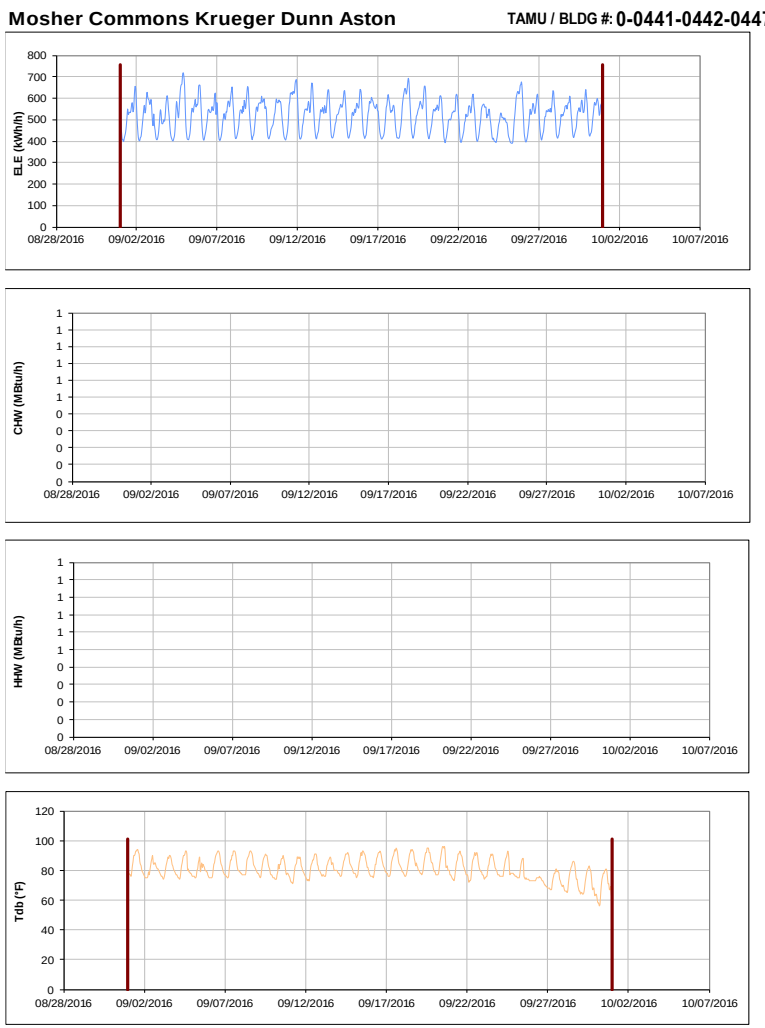


Figure III-50 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Commons Krueger Dunn Aston during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

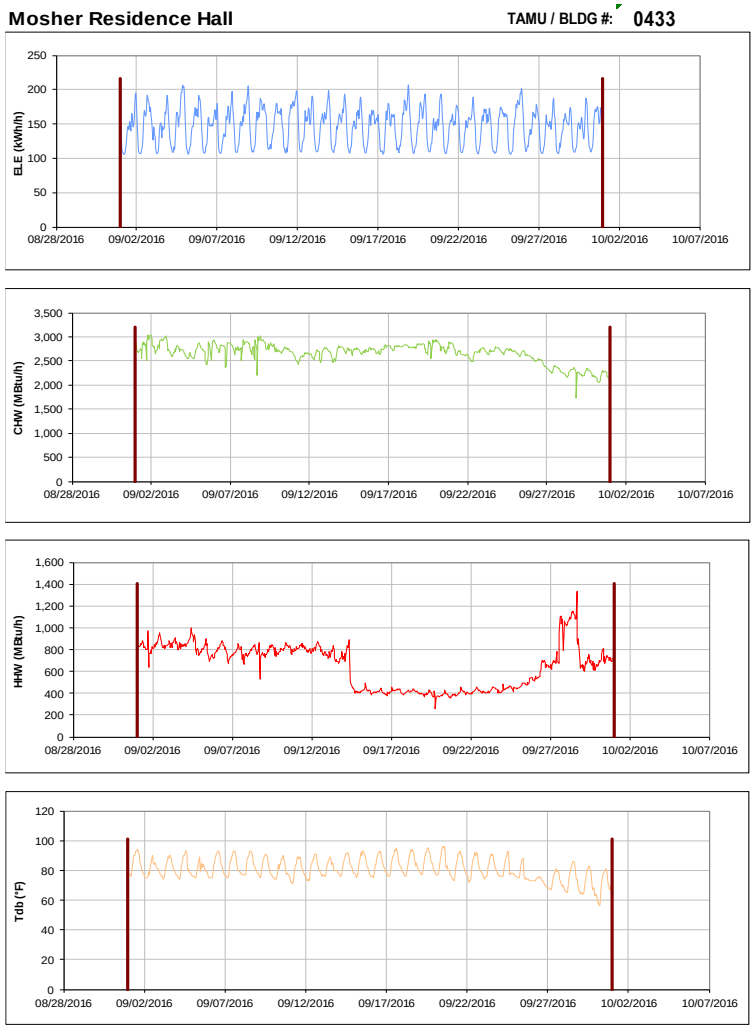


Figure III-51 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Mosher Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

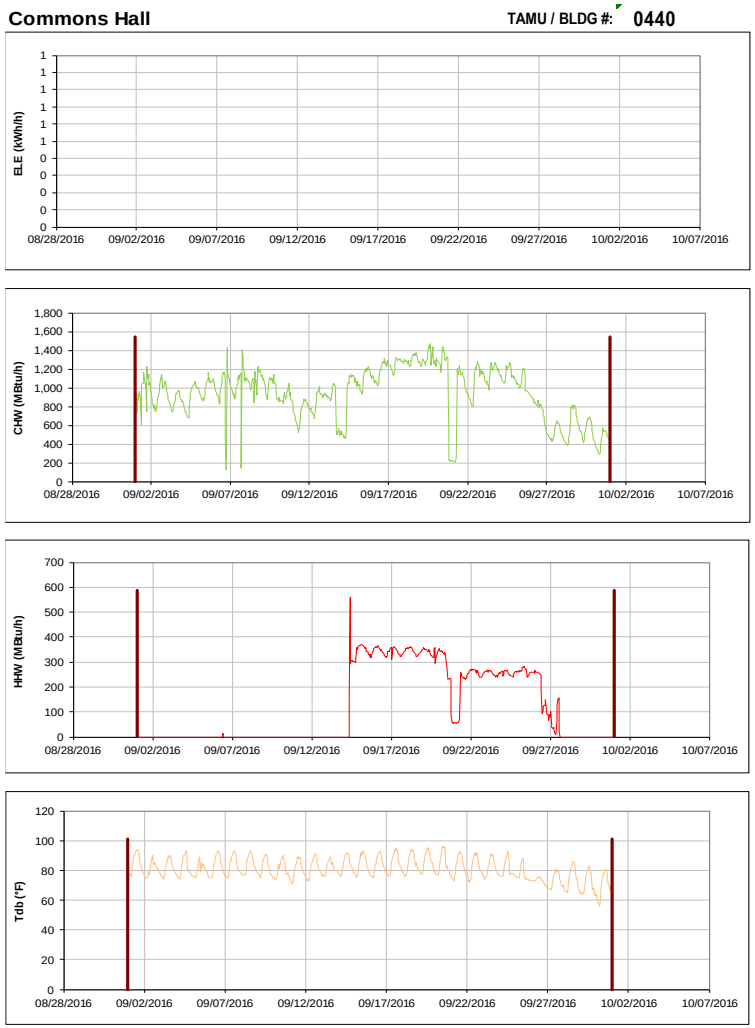


Figure III-52 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Commons Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

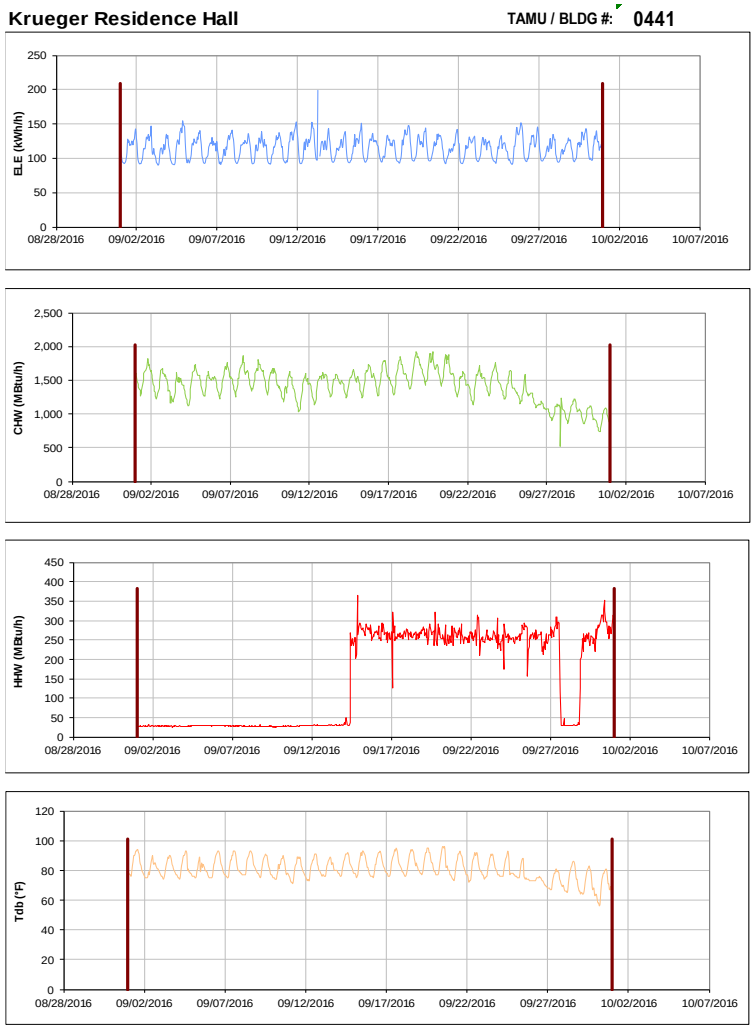


Figure III-53 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Krueger Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

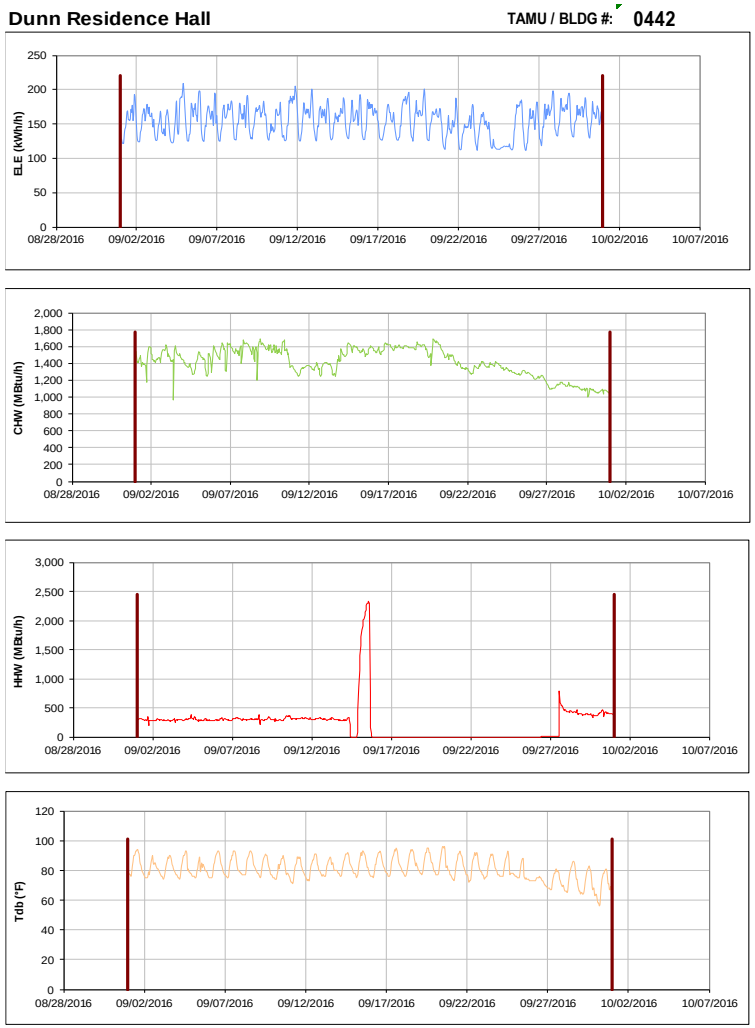


Figure III-54 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Dunn Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

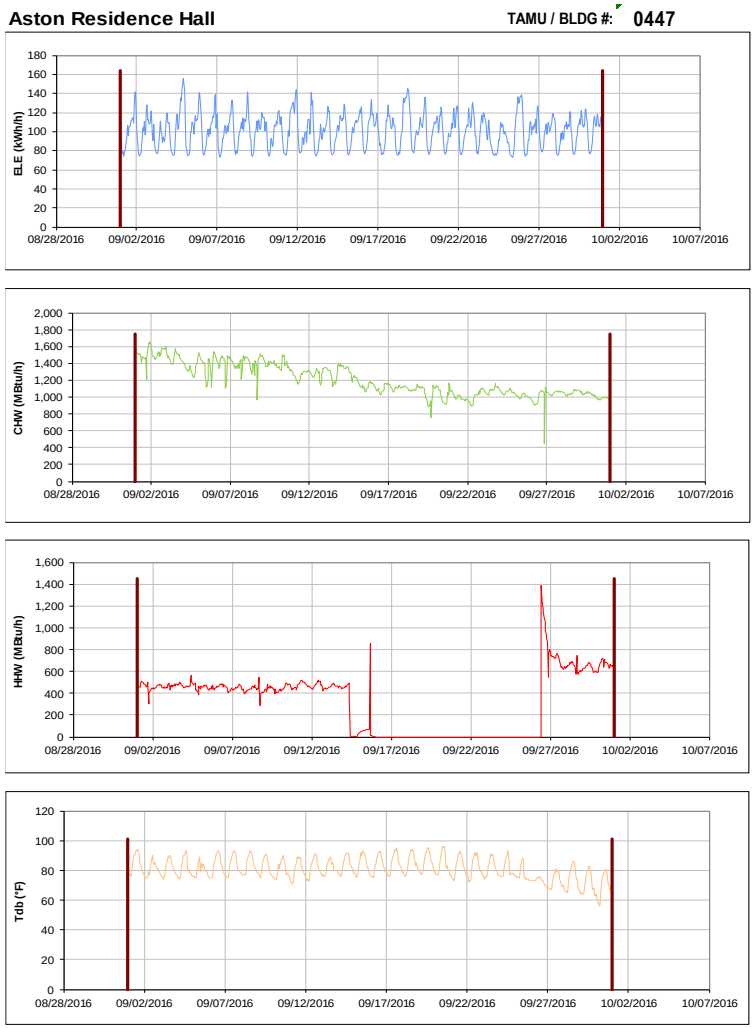


Figure III-55 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Aston Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

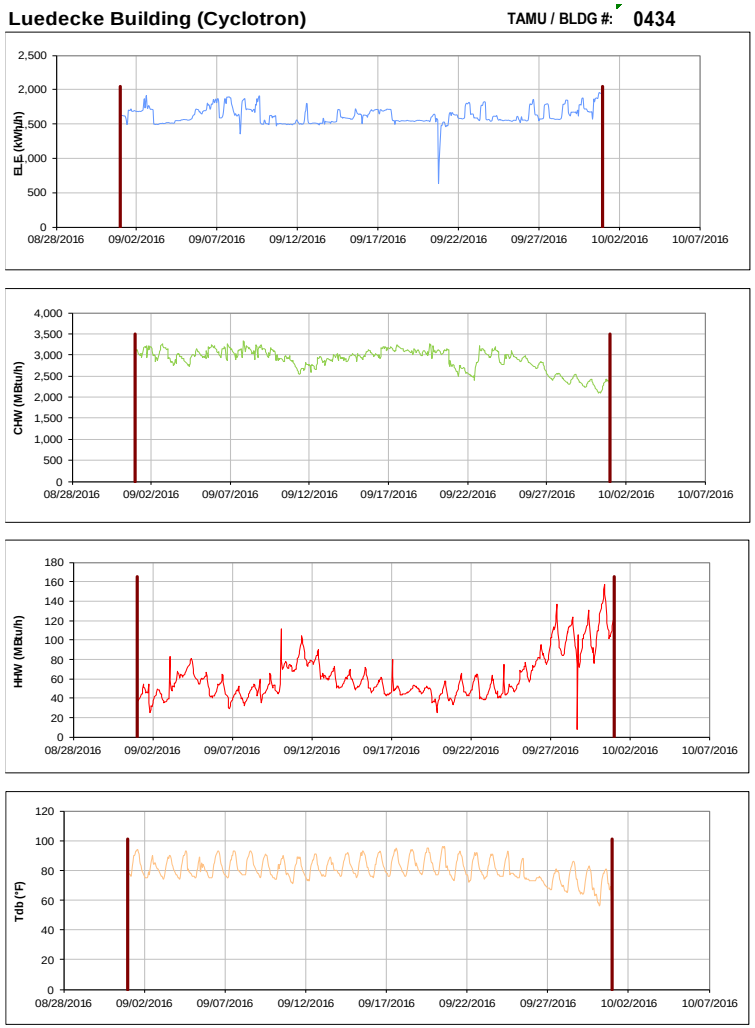


Figure III-56 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Luedecke Building (Cyclotron) during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

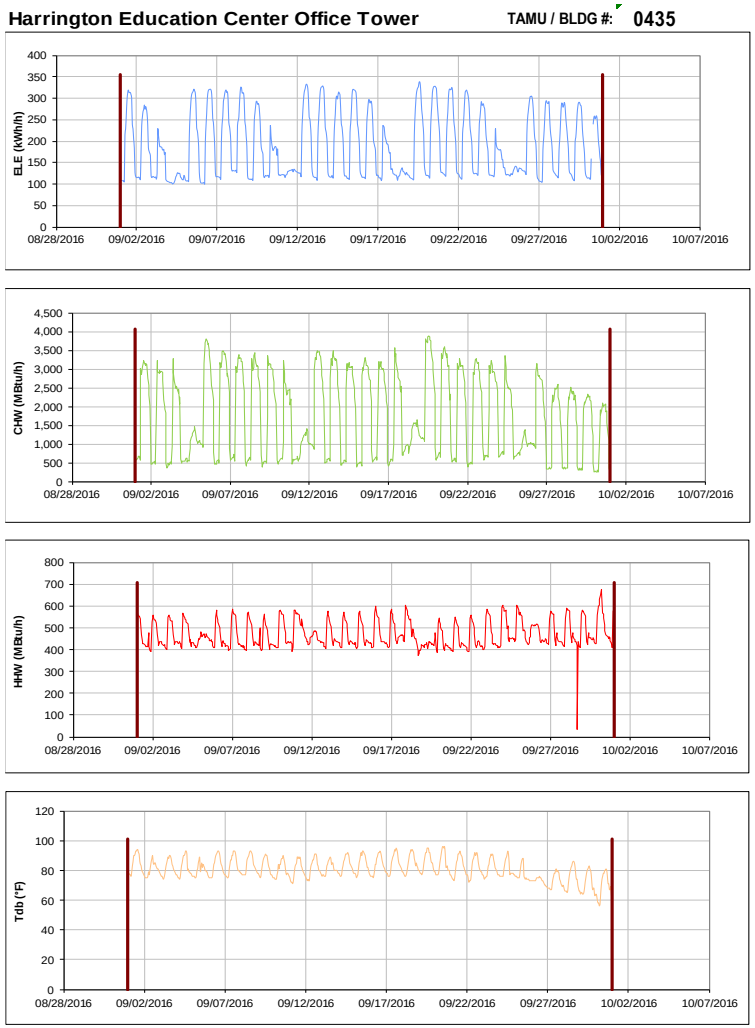


Figure III-57 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Office Tower during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

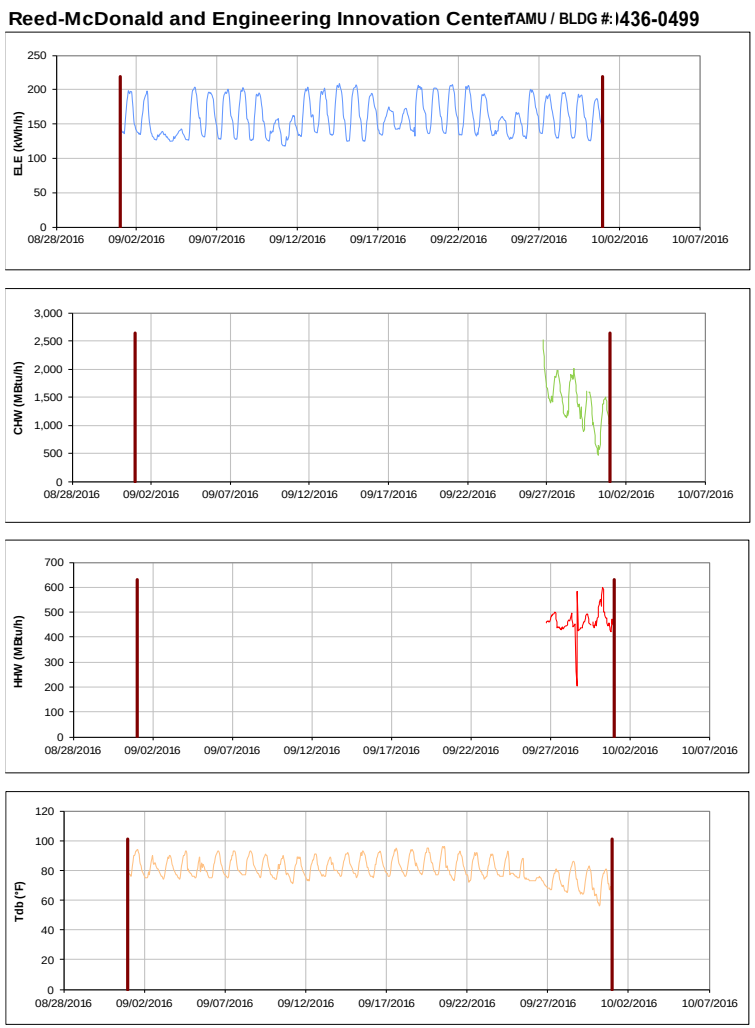


Figure III-58 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald and Engineering Innovation Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

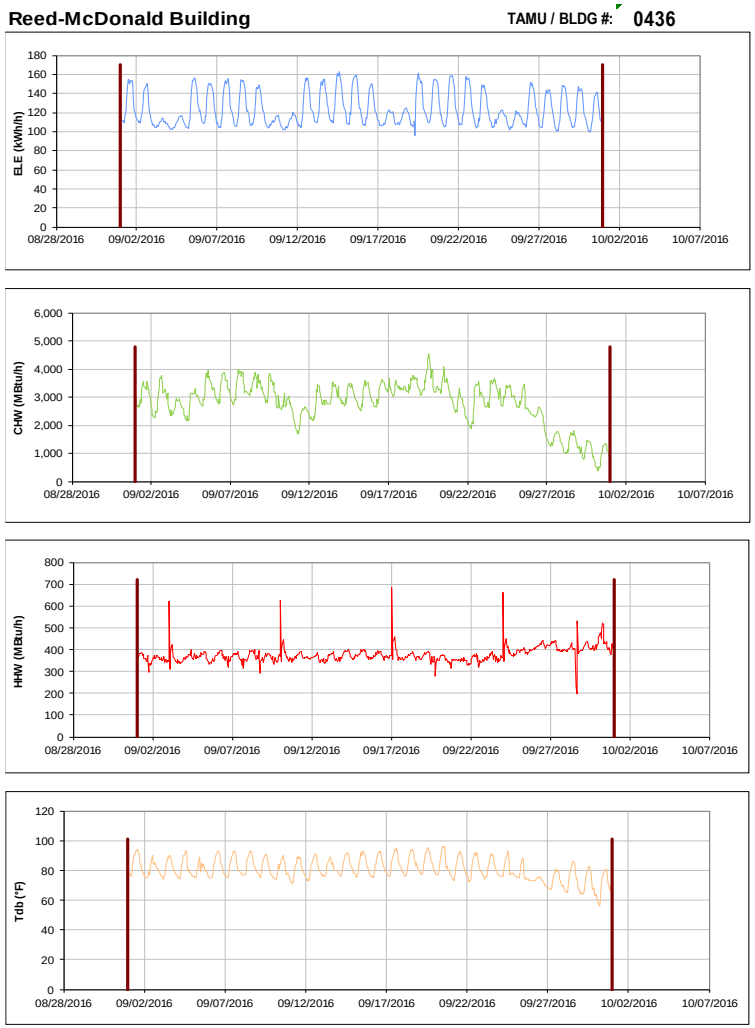


Figure III-59 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed-McDonald Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

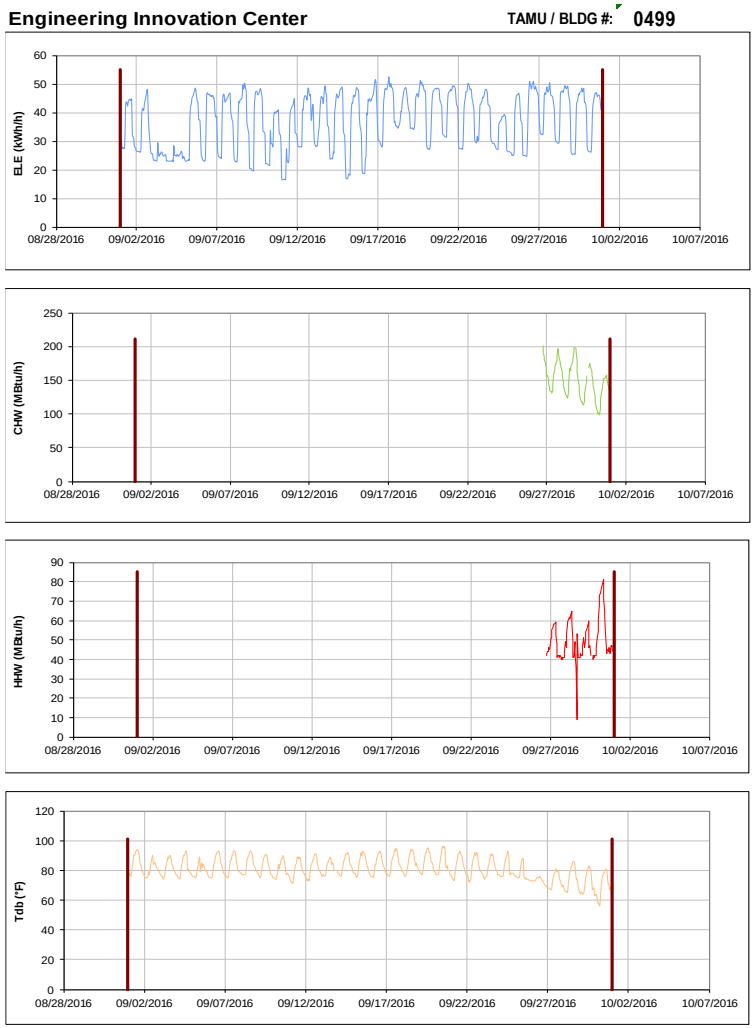


Figure III-60 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Innovation Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

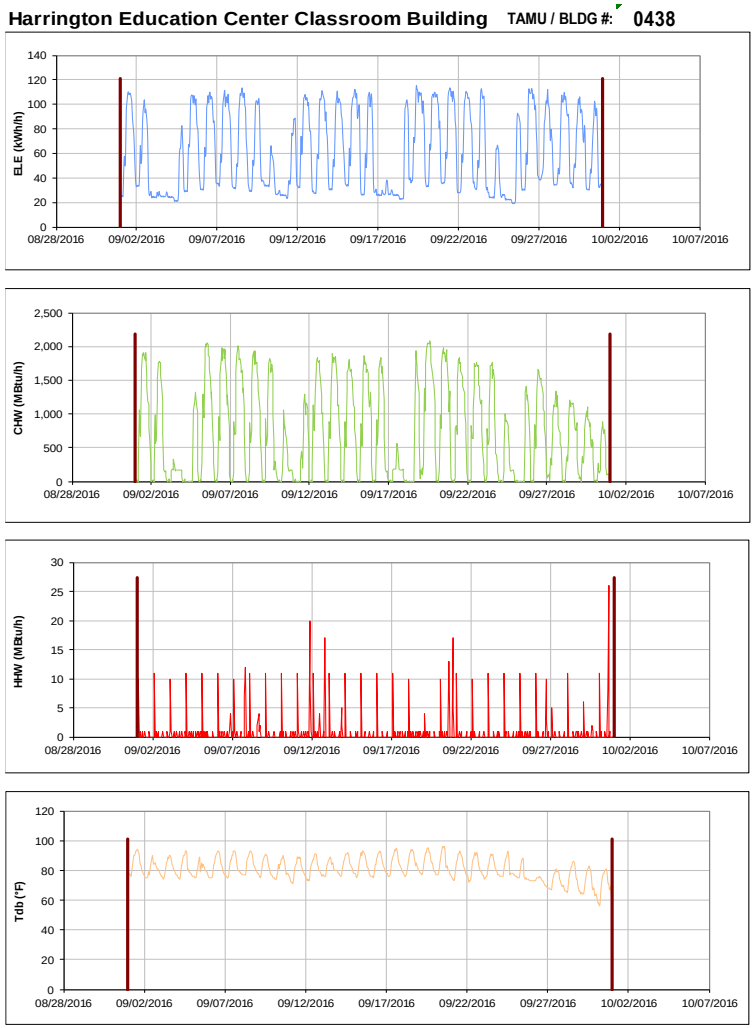


Figure III-61 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Harrington Education Center Classroom Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

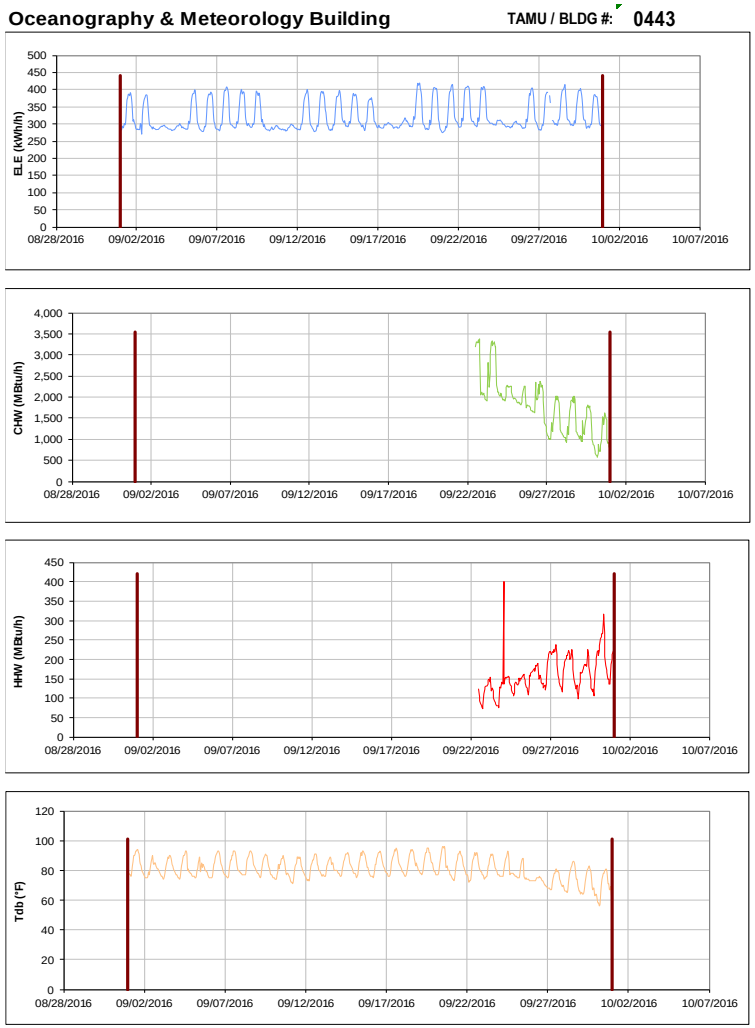


Figure III-62 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Oceanography & Meteorology Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

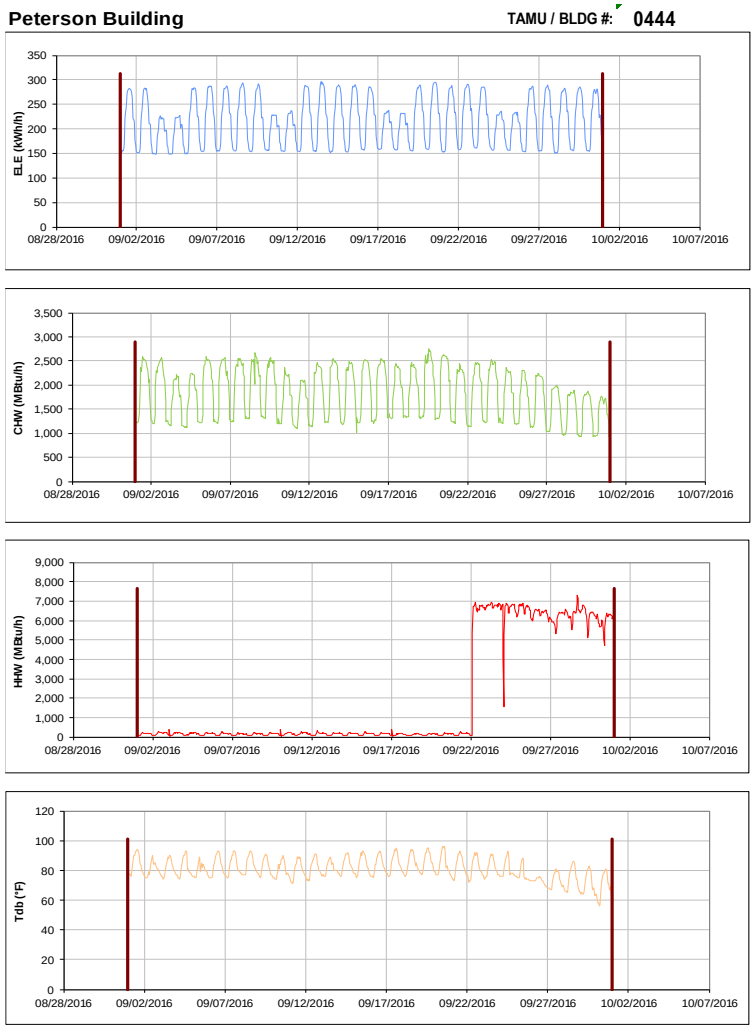


Figure III-63 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Peterson Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

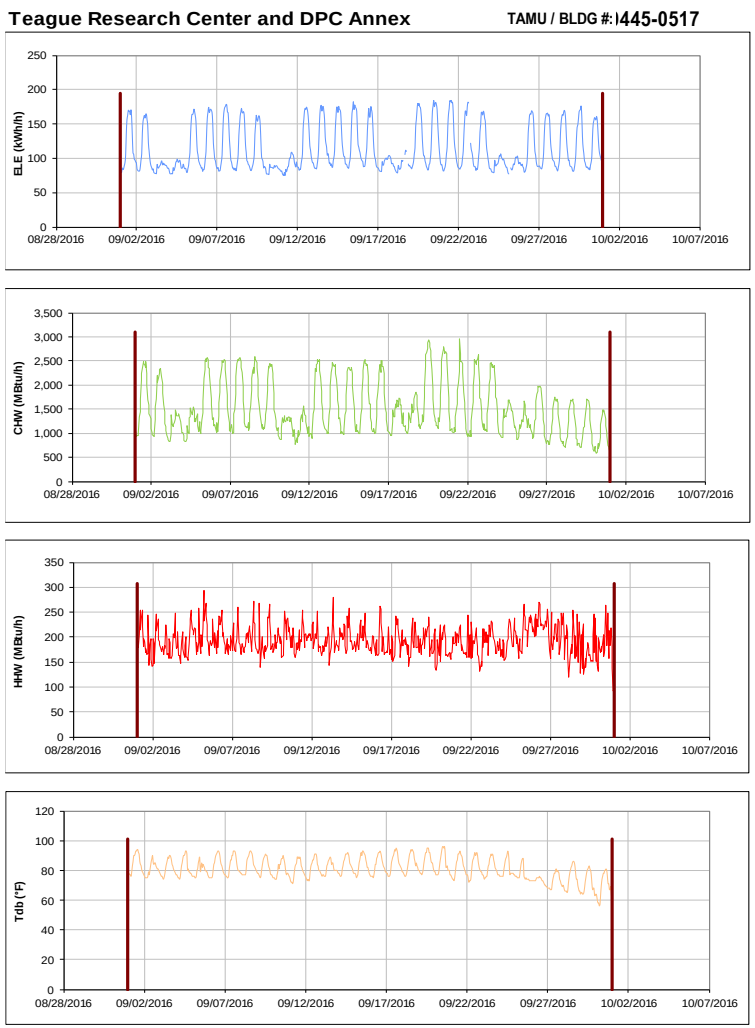


Figure III-64 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center and DPC Annex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

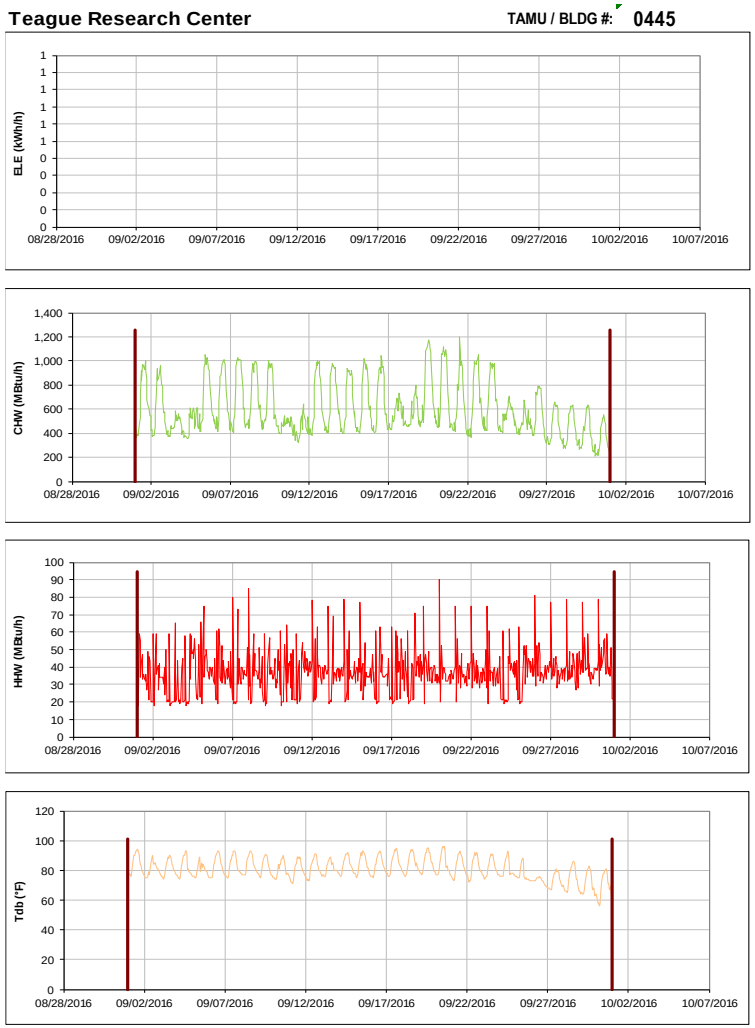


Figure III-65 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Teague Research Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

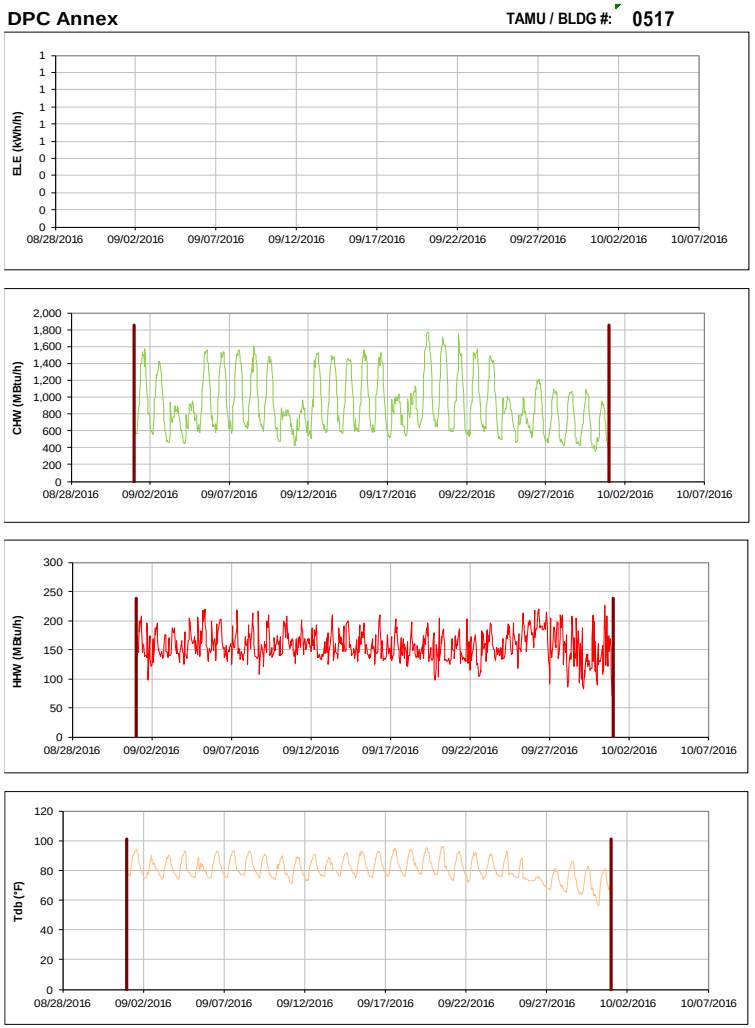


Figure III-66 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for DPC Annex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

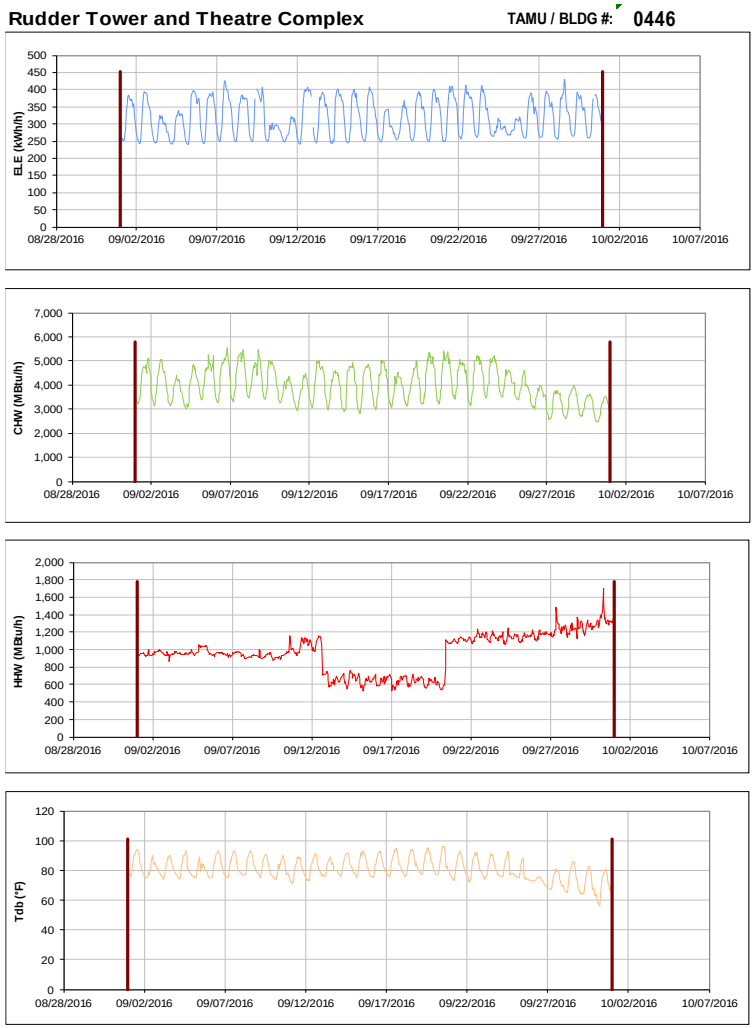


Figure III-67 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower and Theatre Complex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

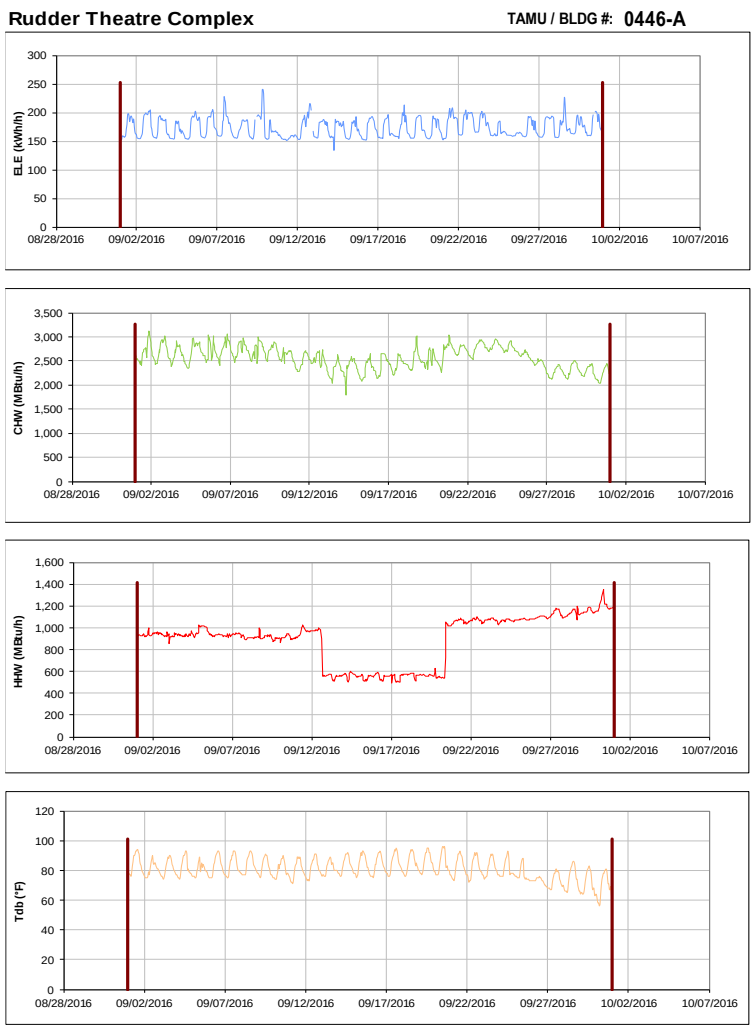


Figure III-68 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Theatre Complex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

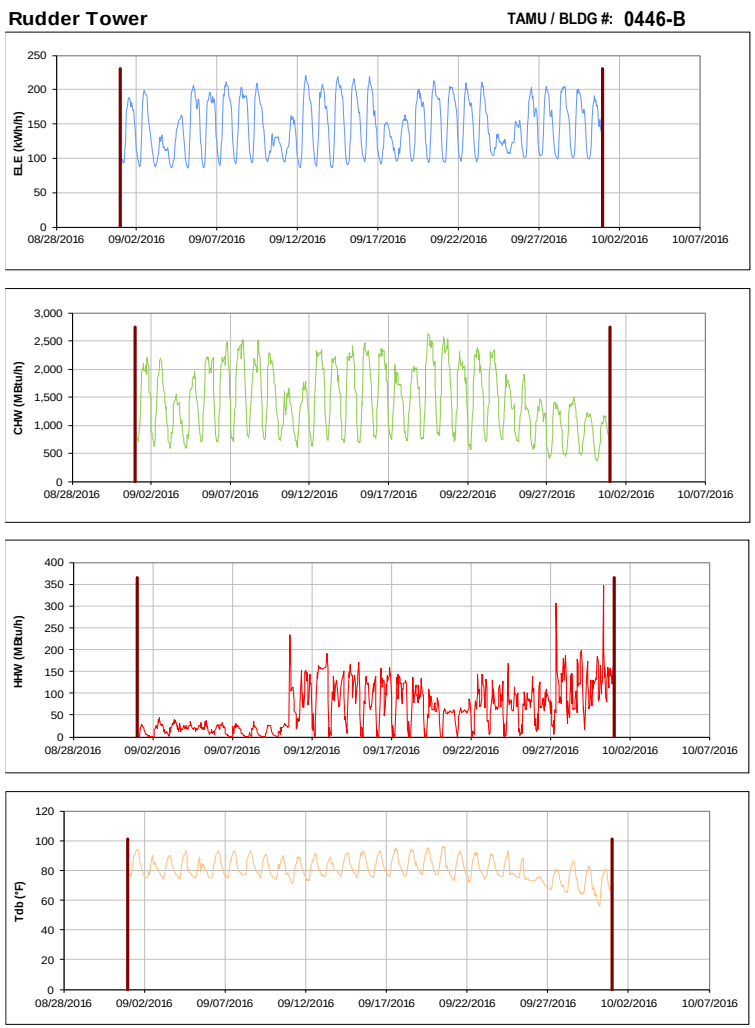


Figure III-69 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rudder Tower during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

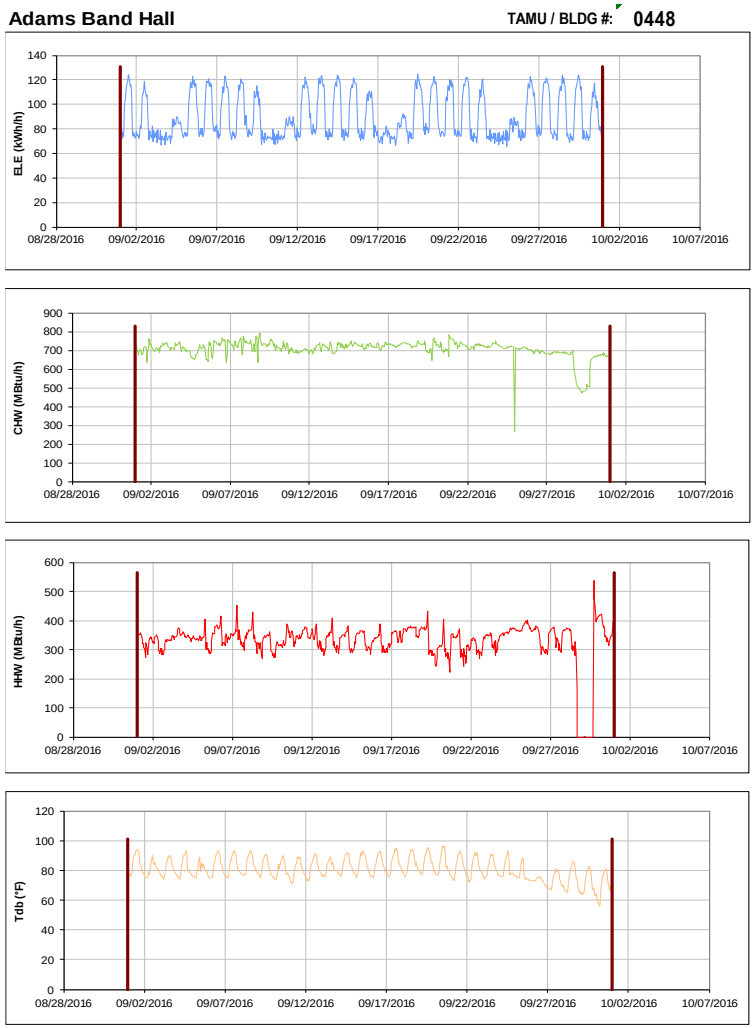


Figure III-70 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Adams Band Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

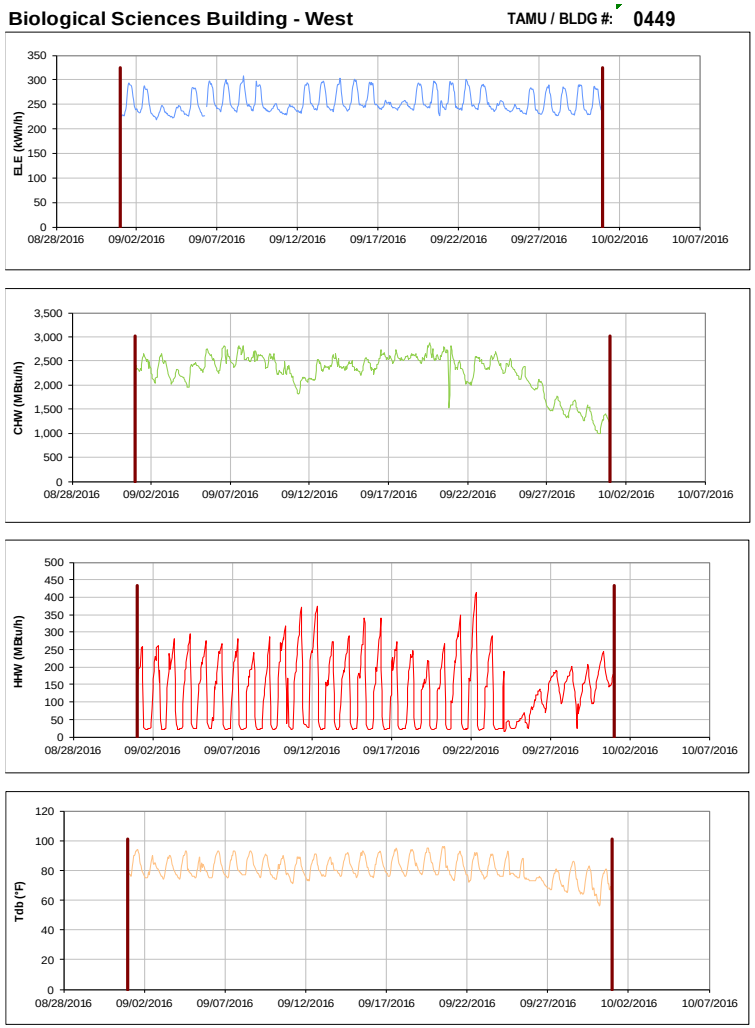


Figure III-71 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - West during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

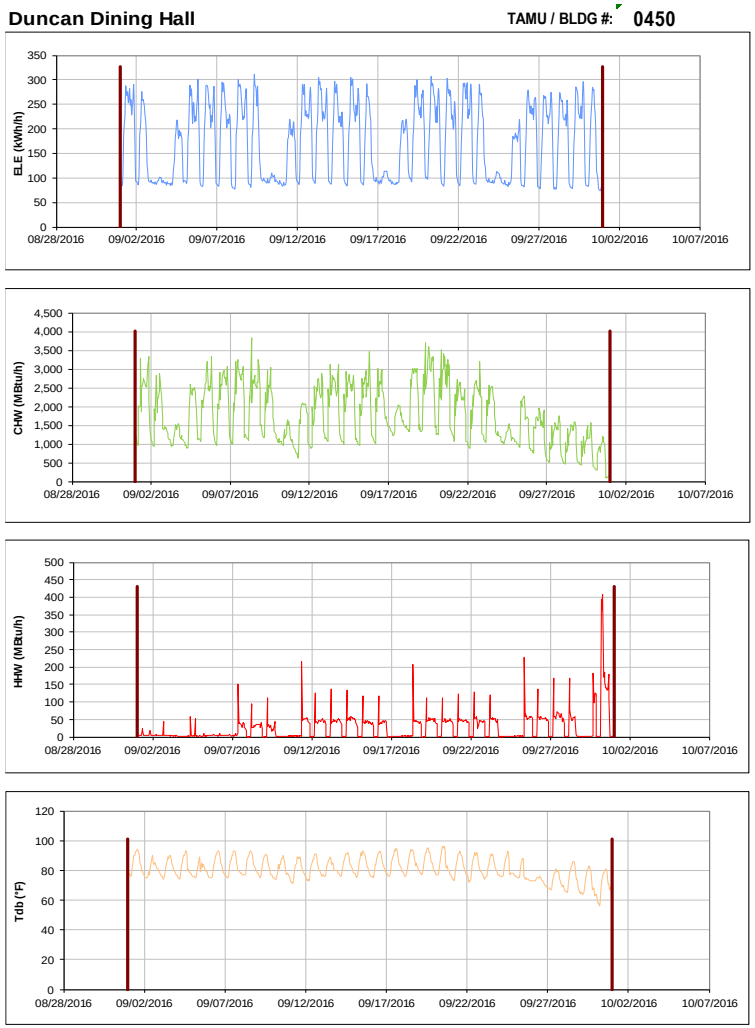


Figure III-72 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Duncan Dining Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

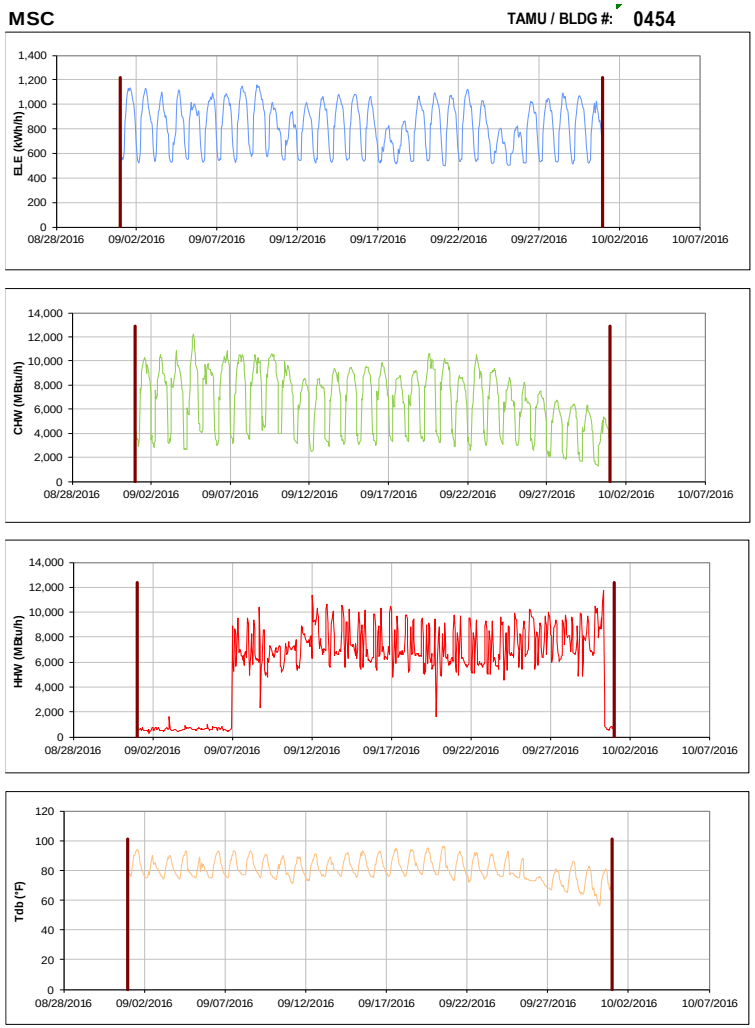


Figure III-73 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for MSC during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

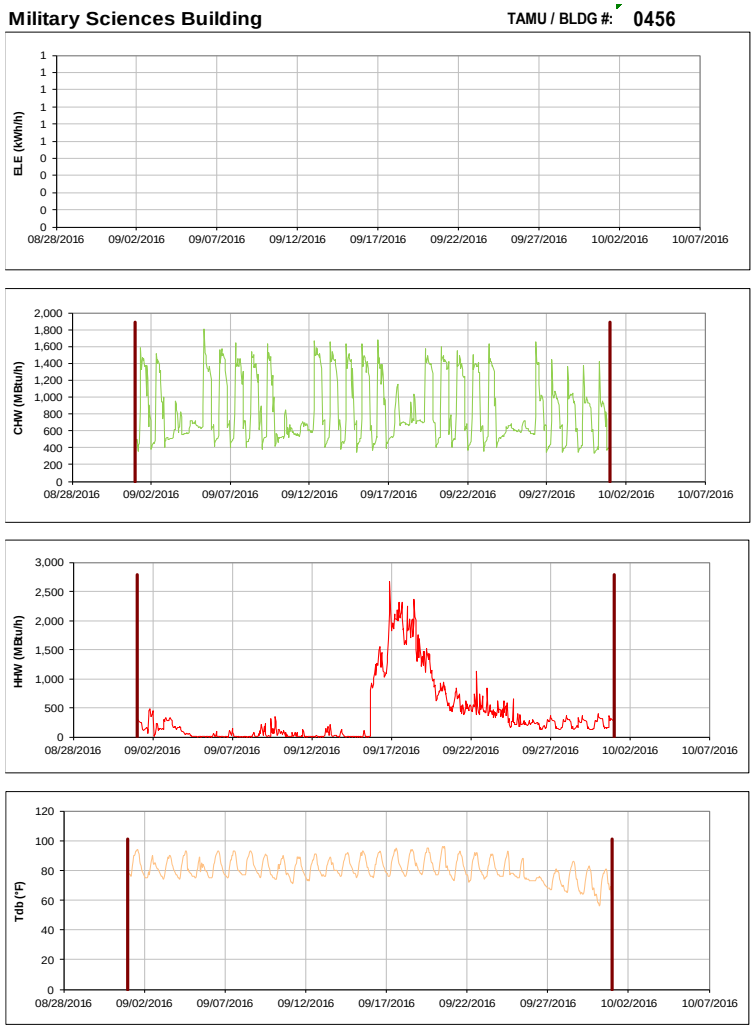


Figure III-74 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Military Sciences Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

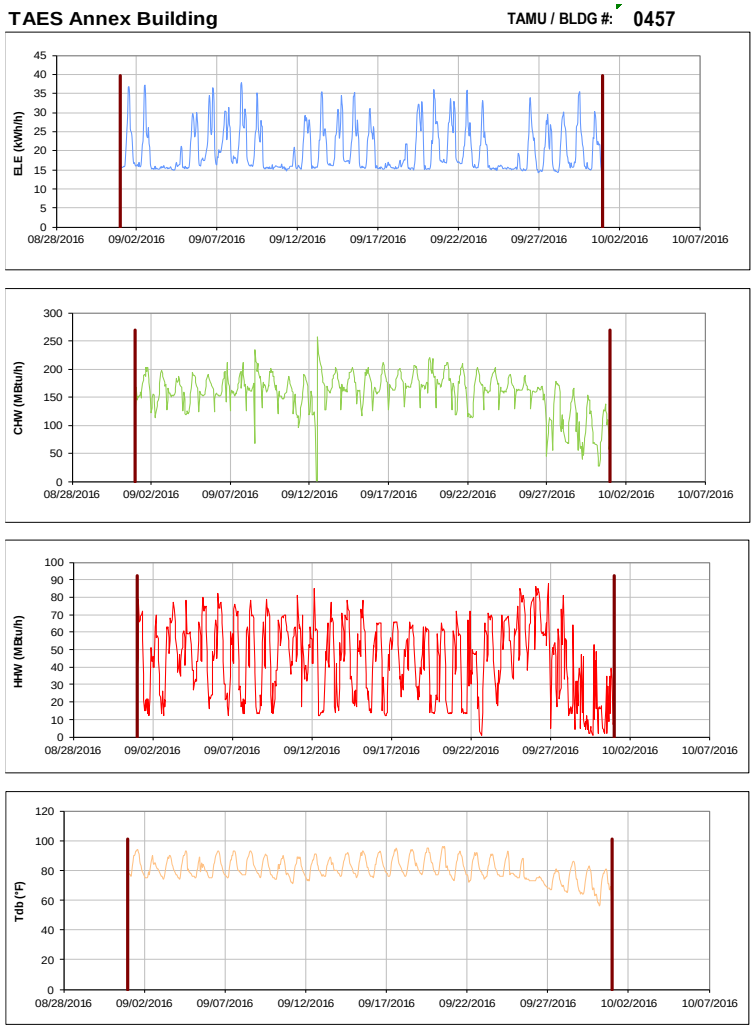


Figure III-75 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TAES Annex Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

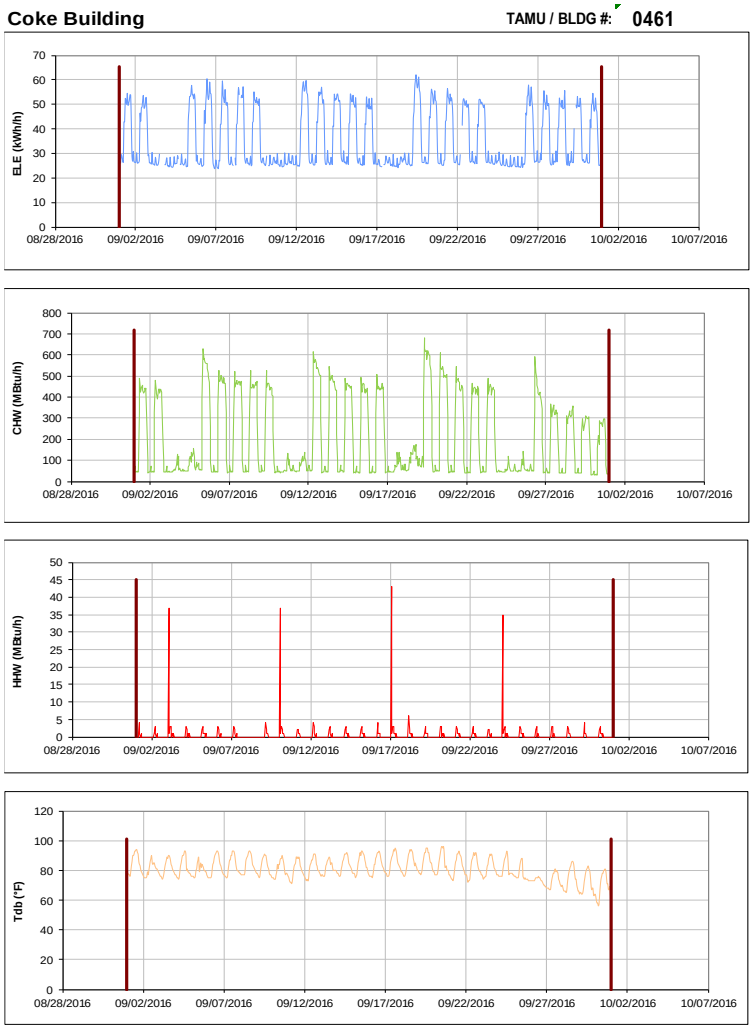


Figure III-76 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Coke Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

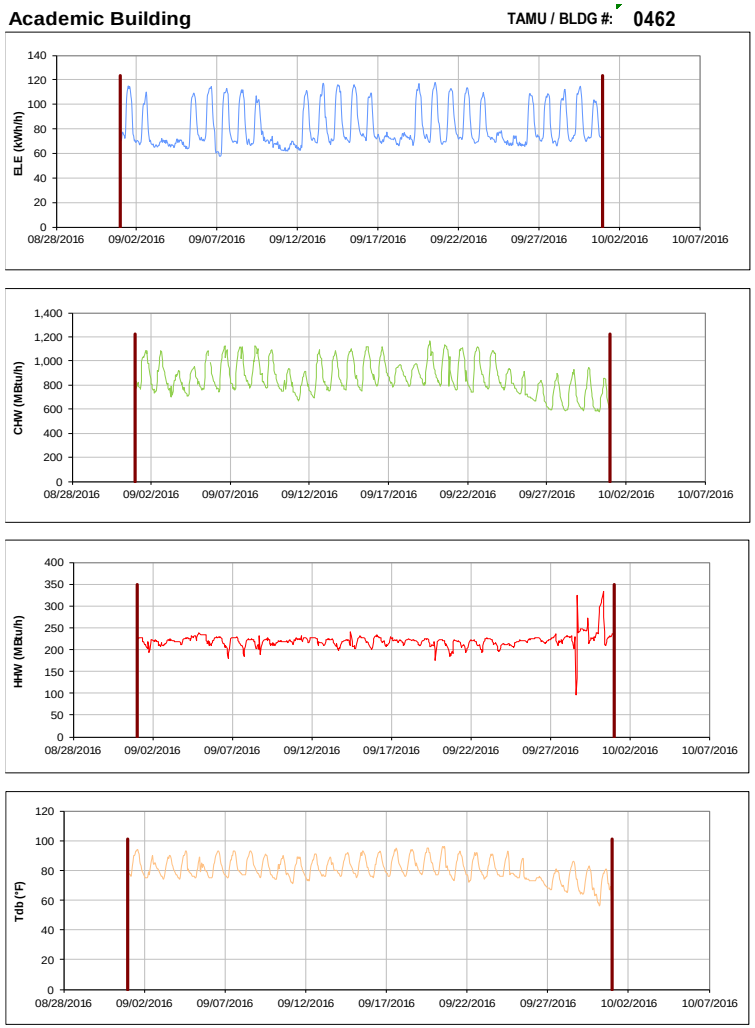


Figure III-77 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Academic Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

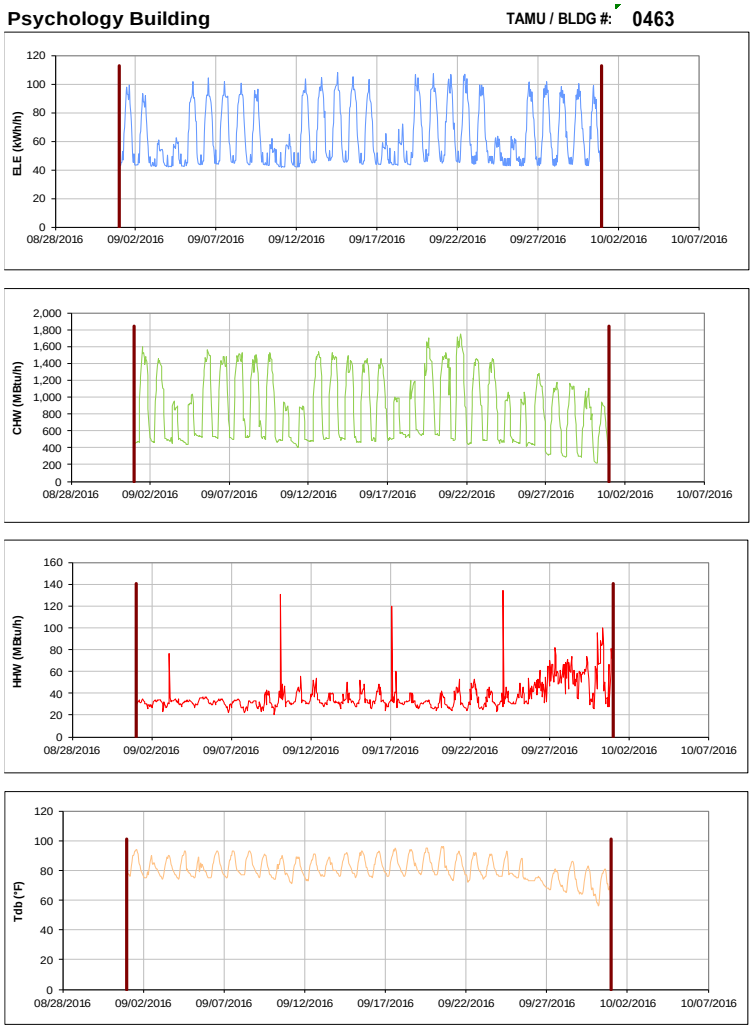


Figure III-78 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Psychology Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

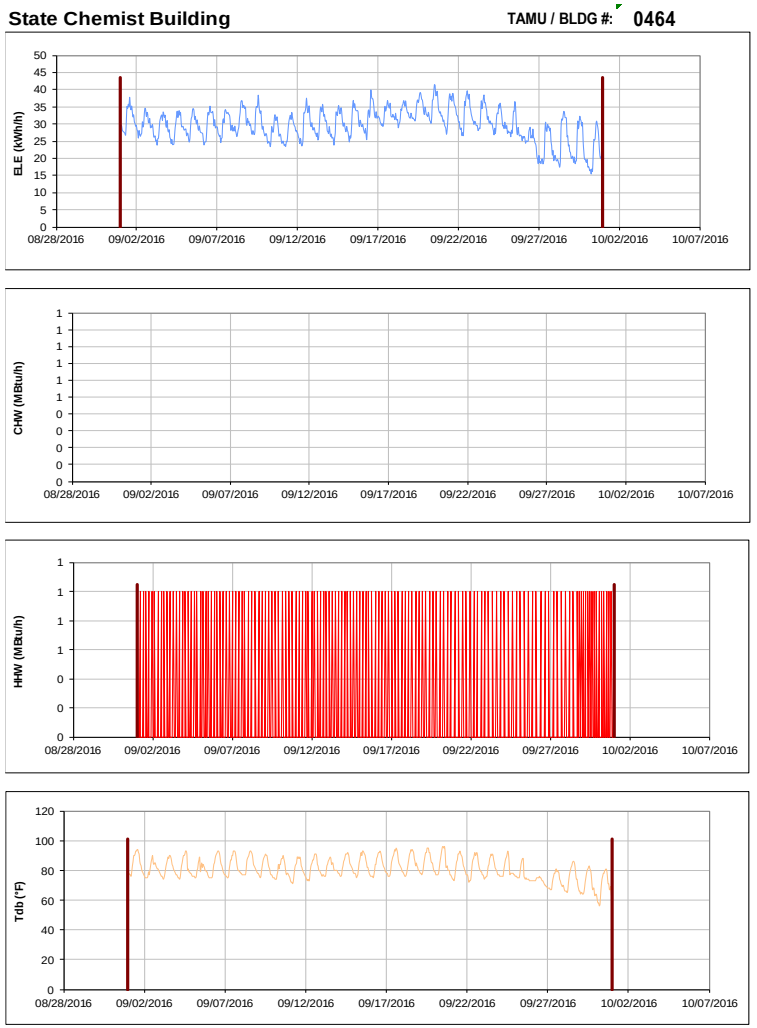


Figure III-79 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for State Chemist Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

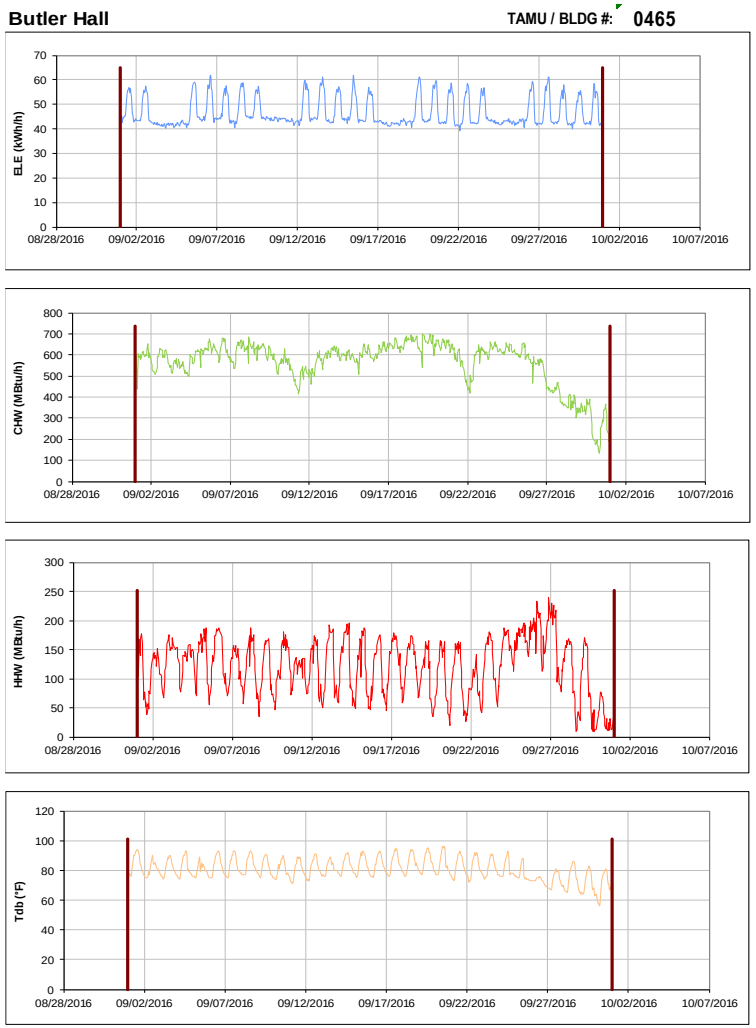


Figure III-80 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Butler Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

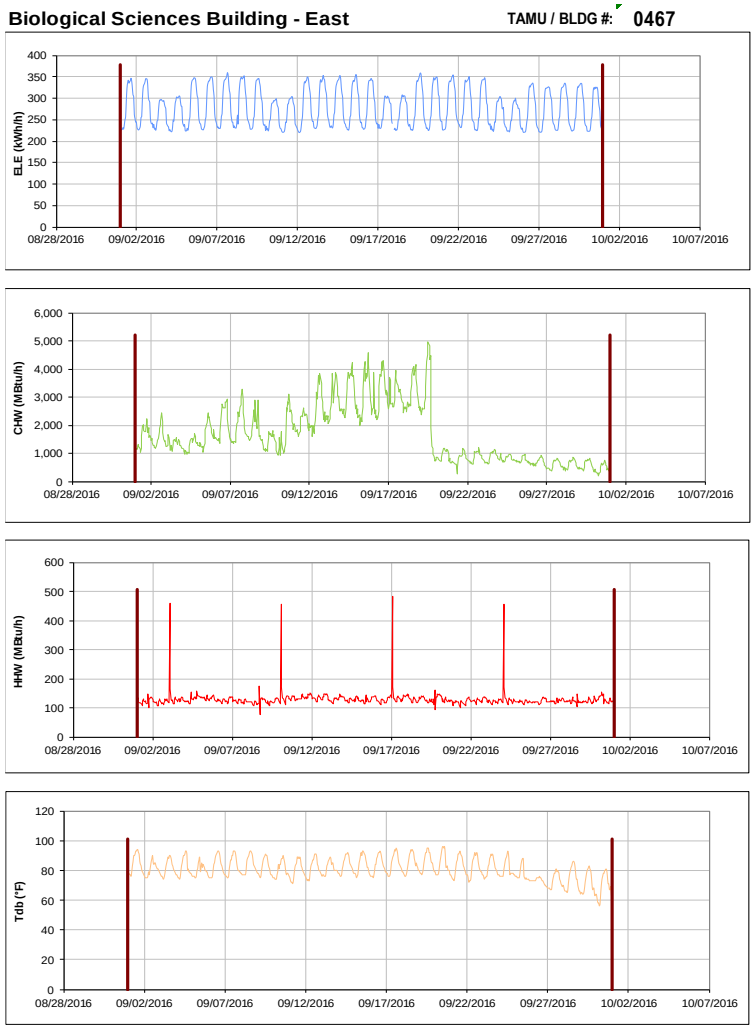


Figure III-81 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Sciences Building - East during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

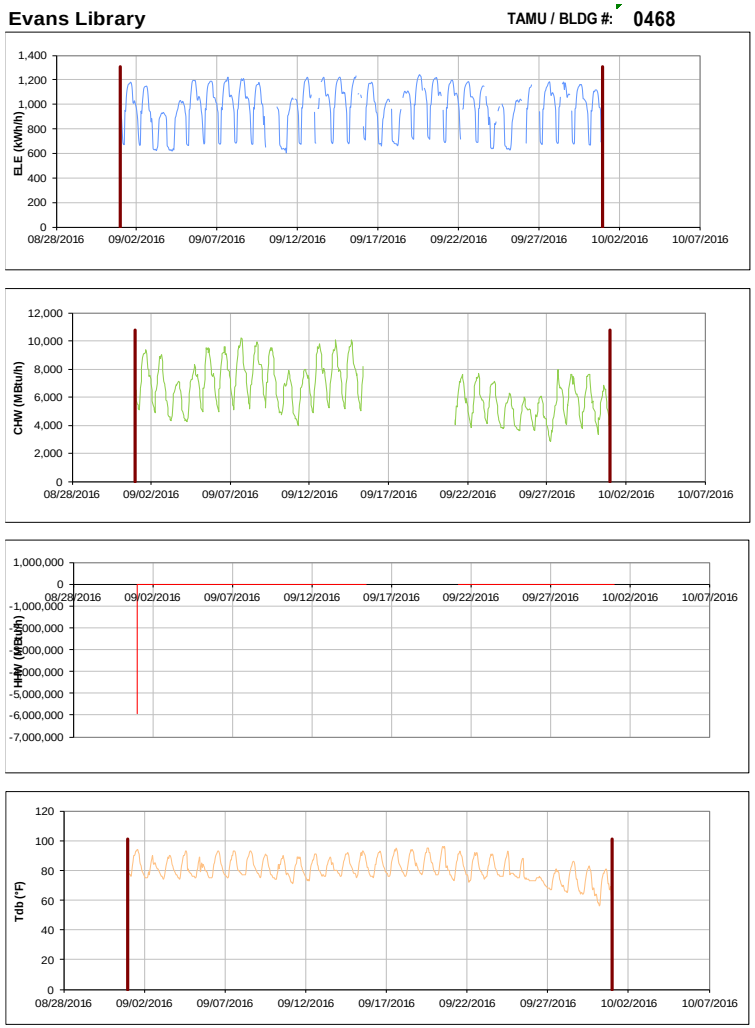


Figure III-82 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Evans Library during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

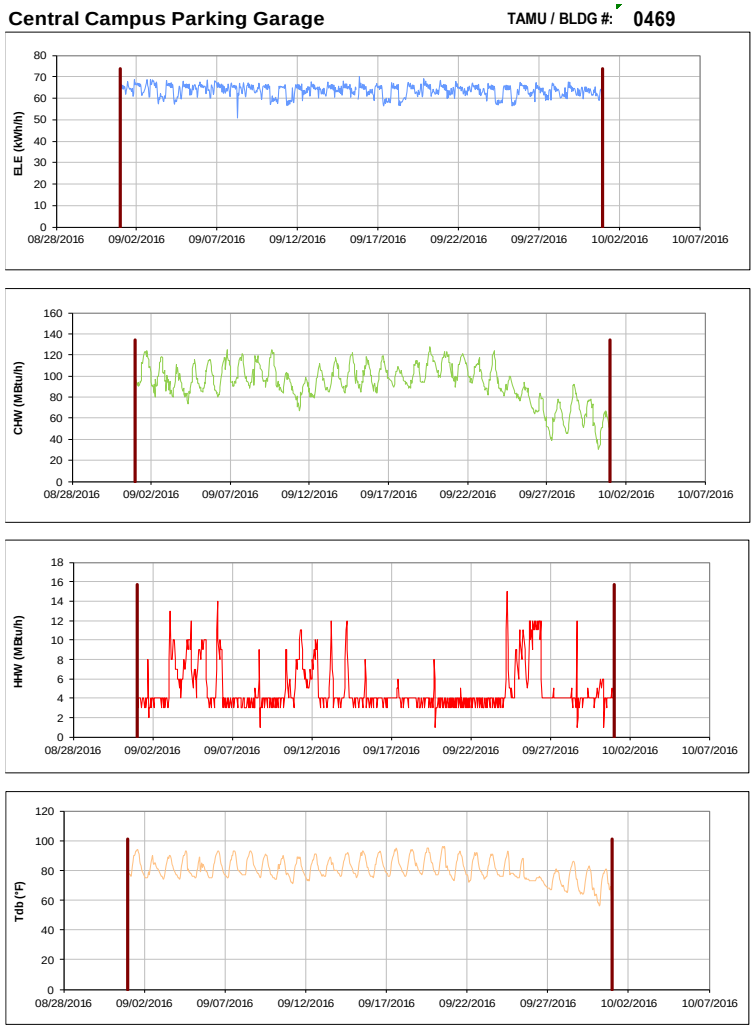


Figure III-83 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Central Campus Parking Garage during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

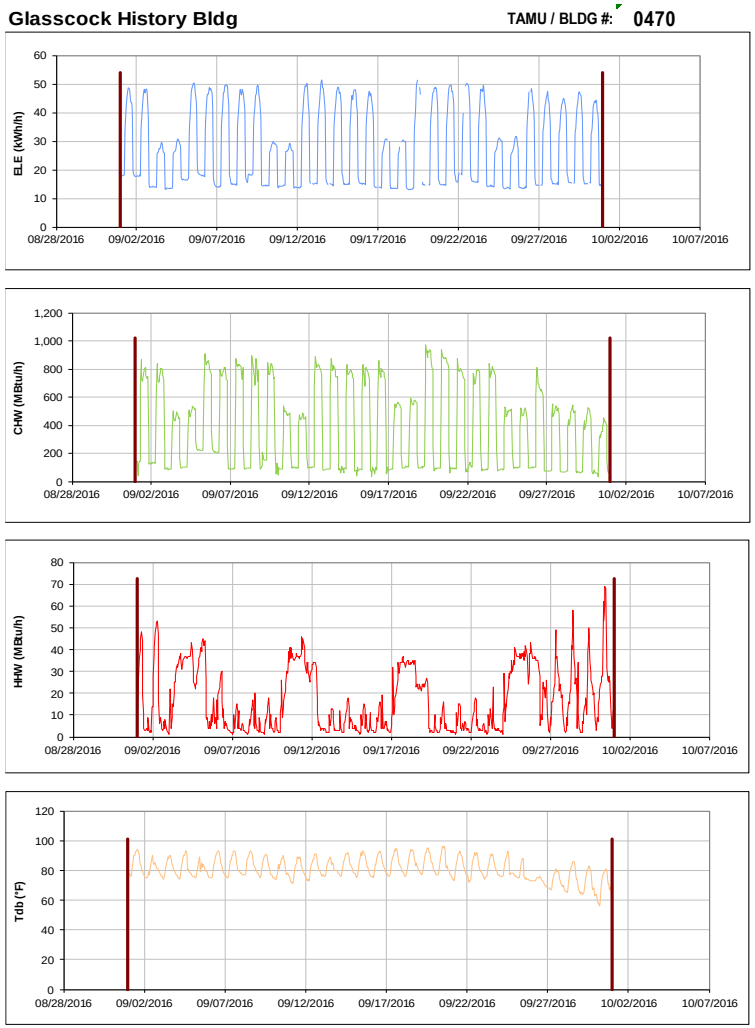


Figure III-84 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Glasscock History Bldg during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

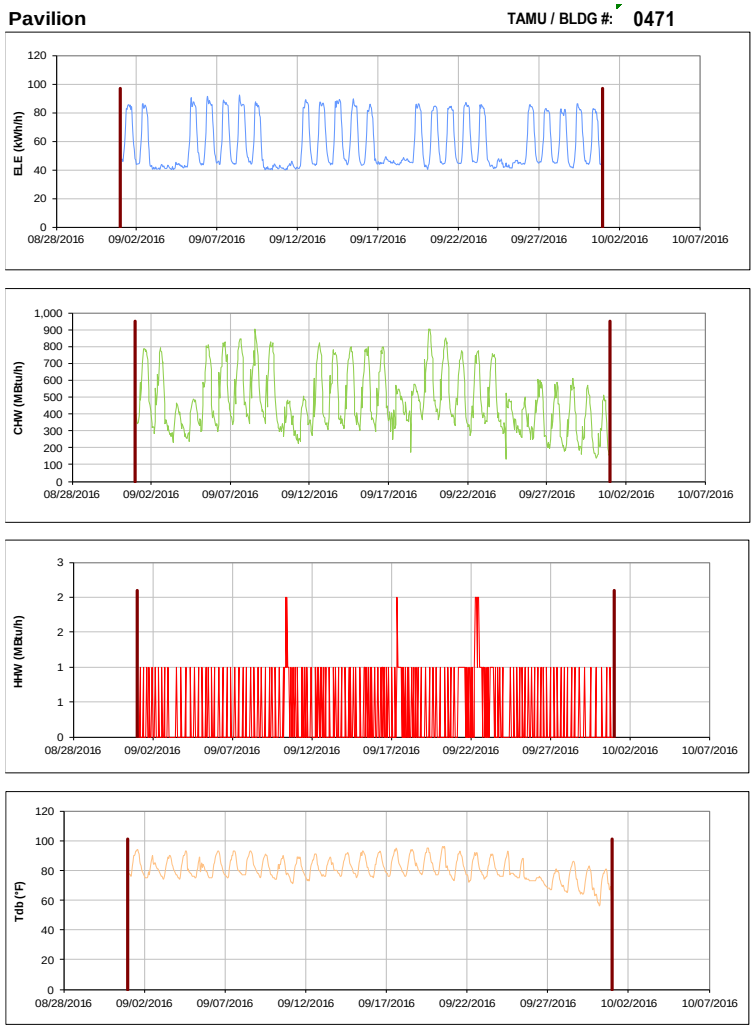


Figure III-85 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Pavilion during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

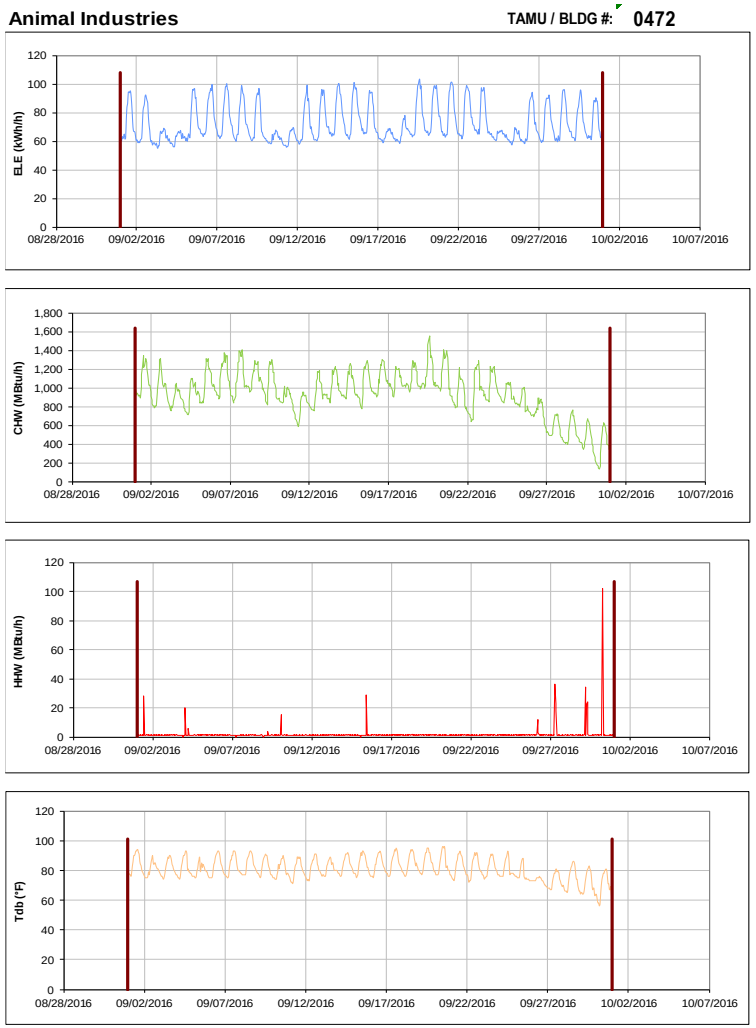


Figure III-86 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Animal Industries during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

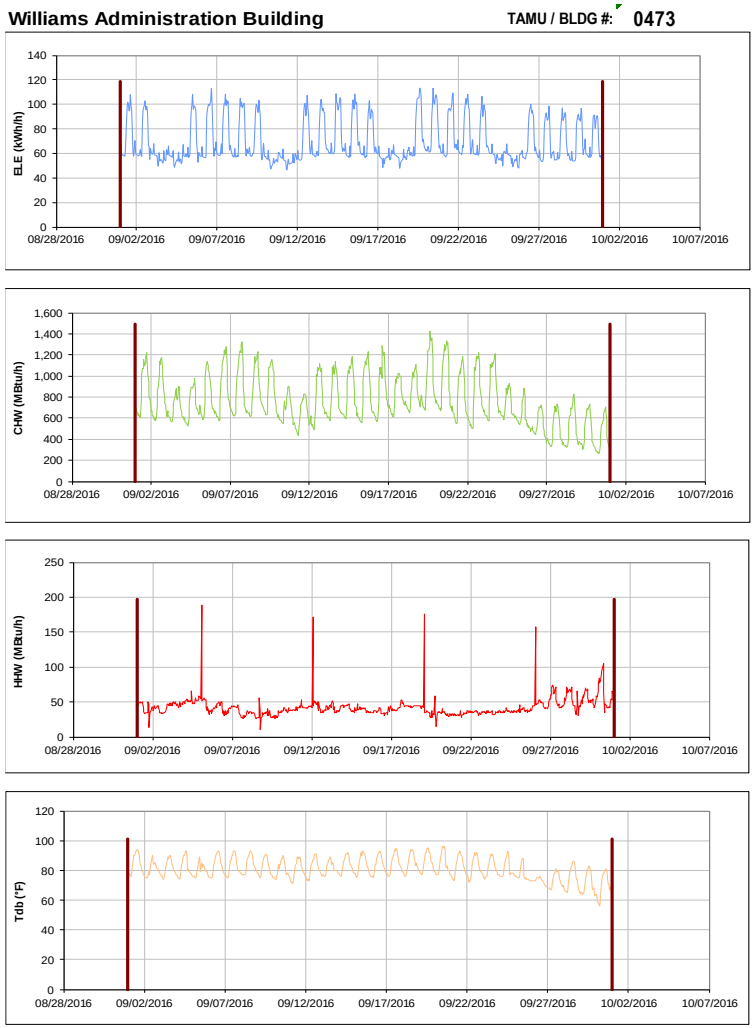


Figure III-87 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Williams Administration Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

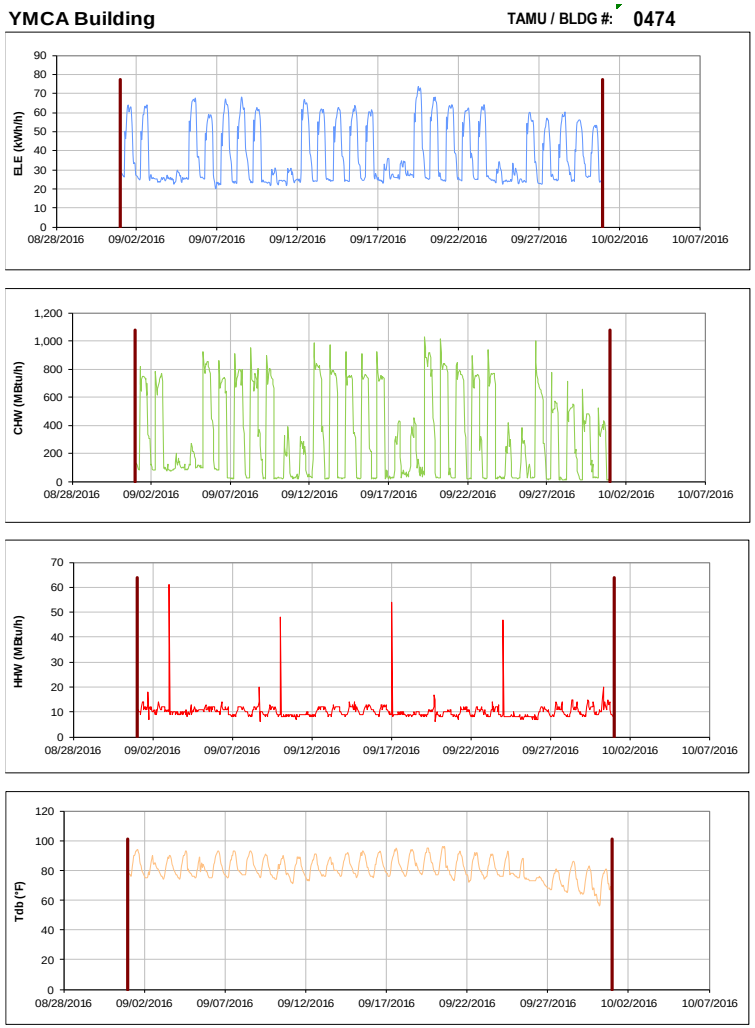


Figure III-88 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for YMCA Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

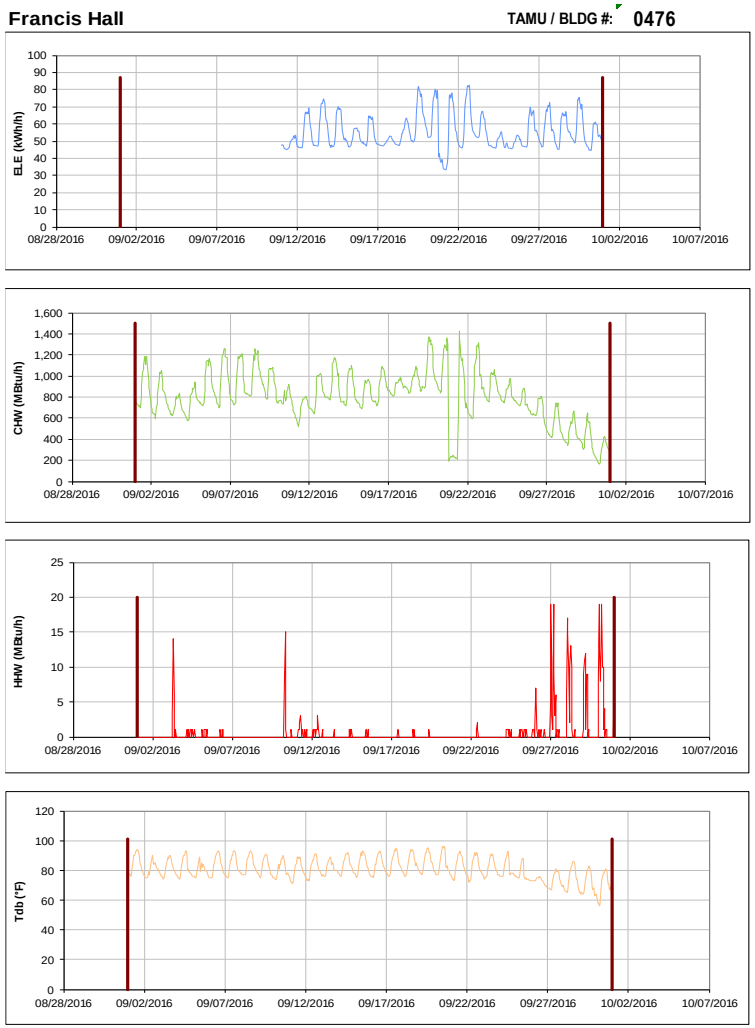


Figure III-89 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Francis Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

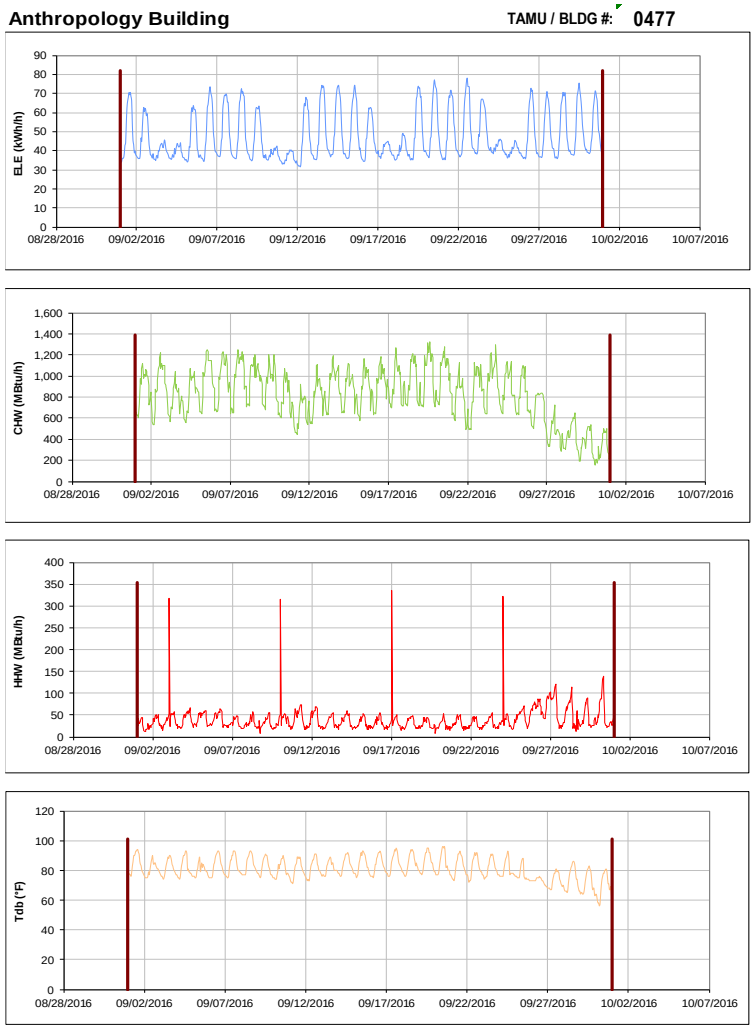


Figure III-90 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Anthropology Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

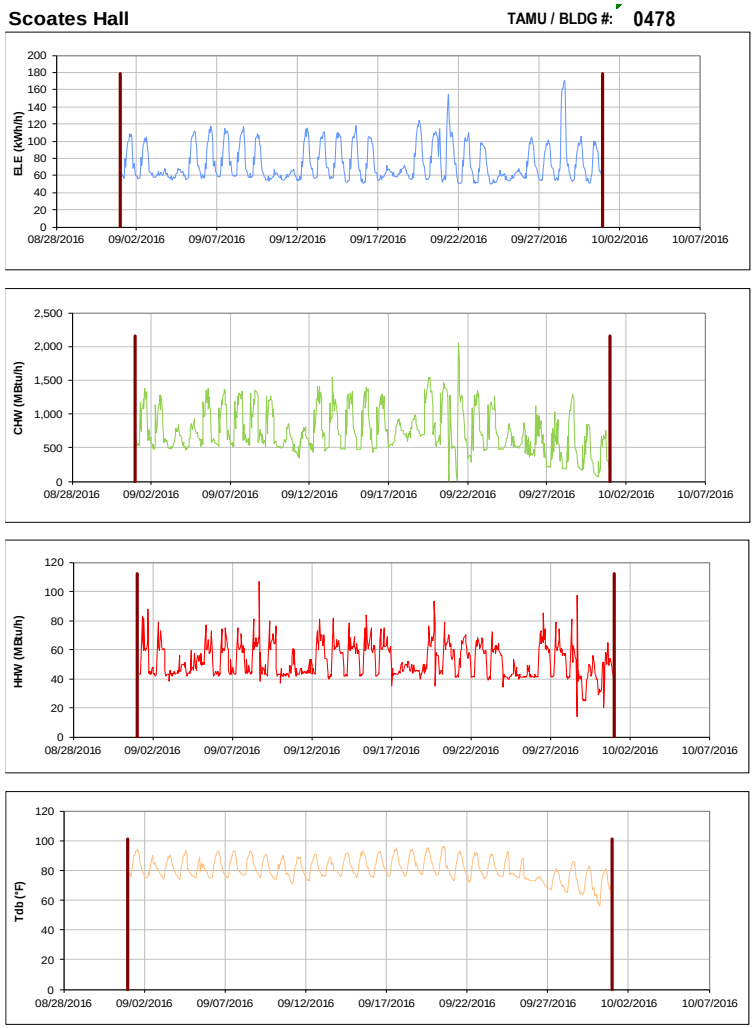


Figure III-91 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Scoates Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

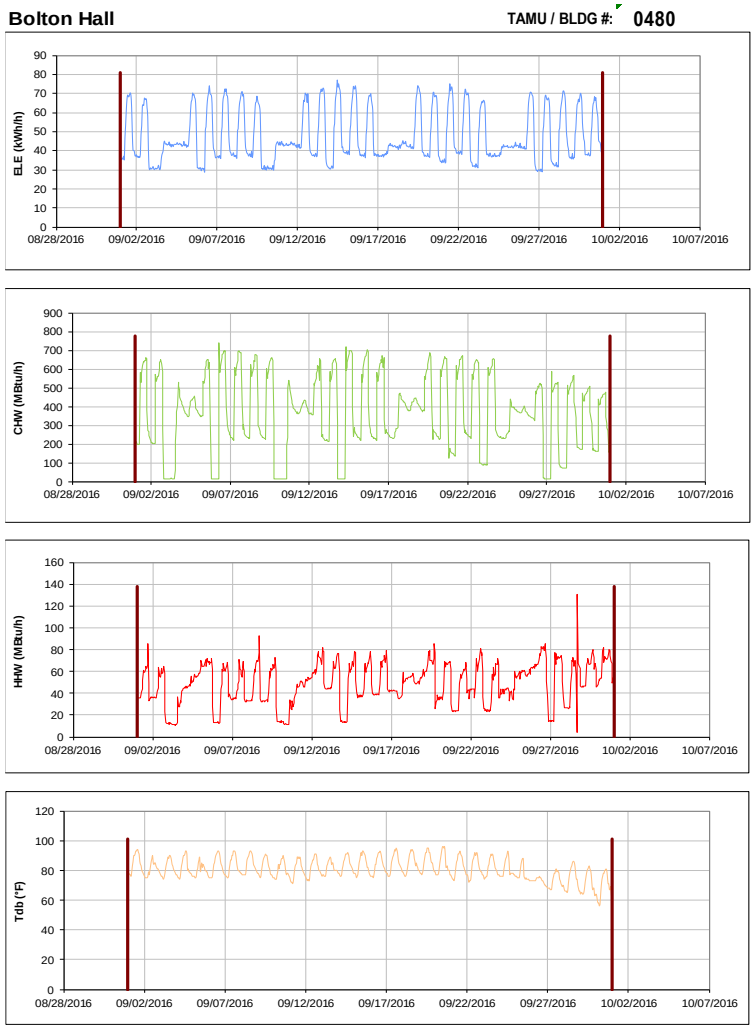


Figure III-92 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Bolton Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

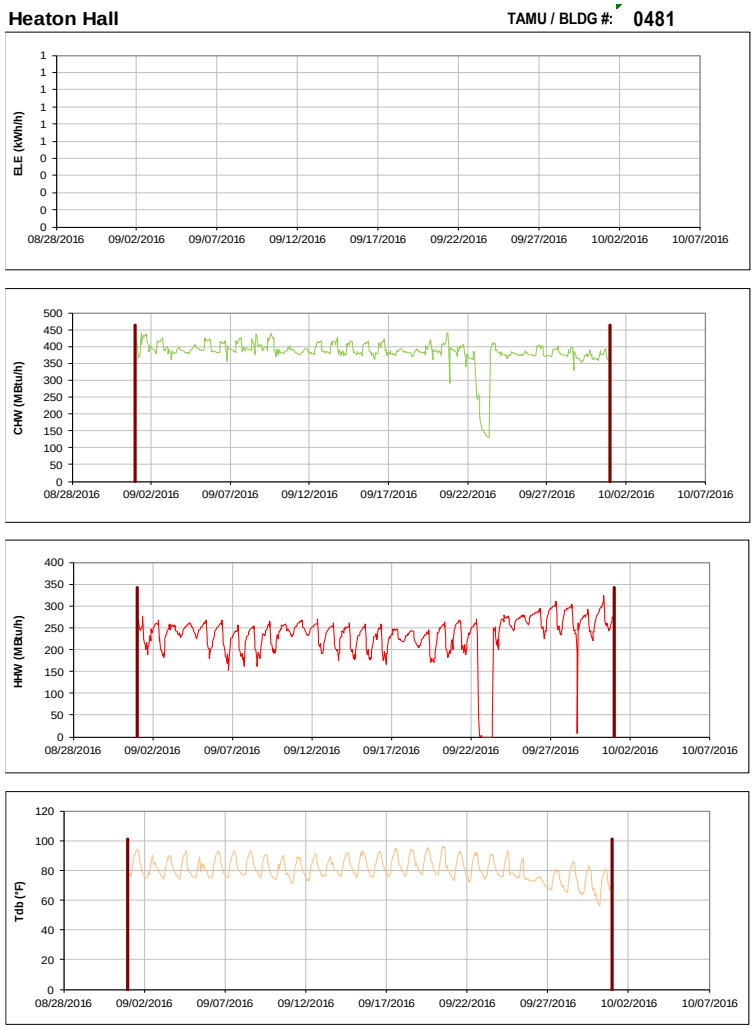


Figure III-93 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heaton Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

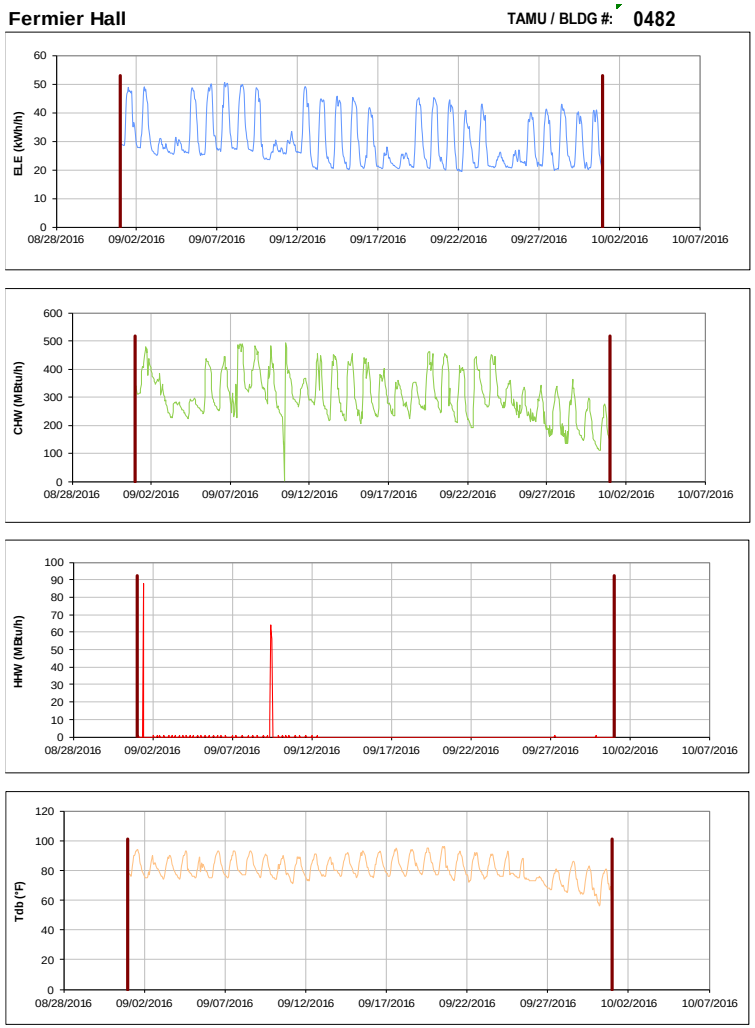


Figure III-94 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Fermier Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

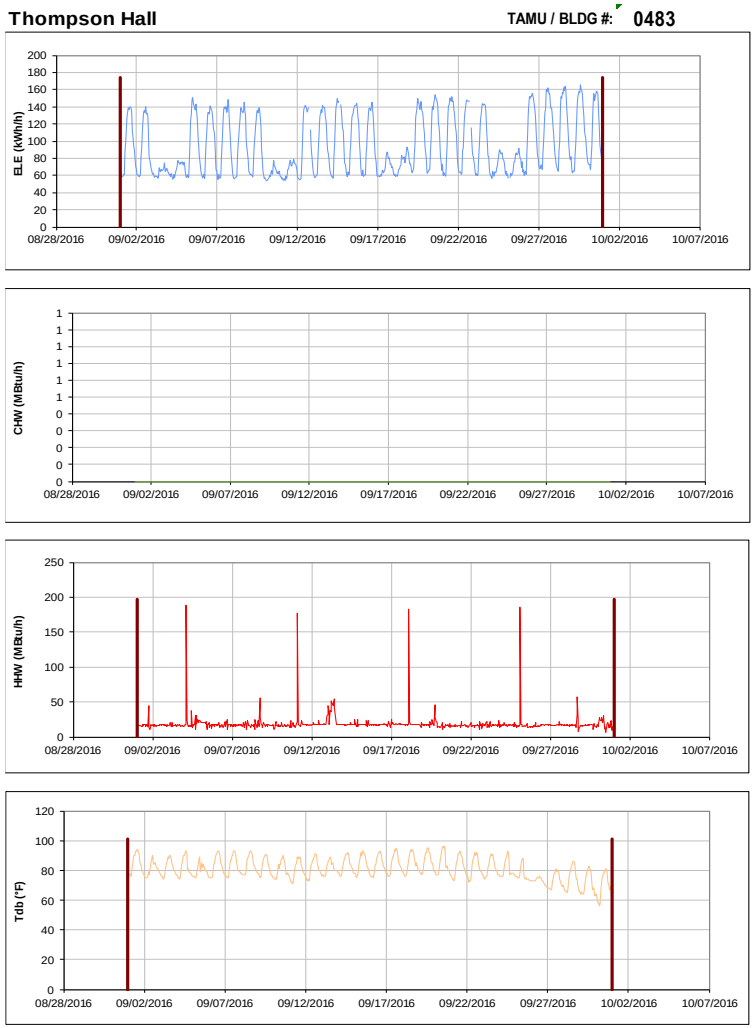


Figure III-95 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Thompson Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

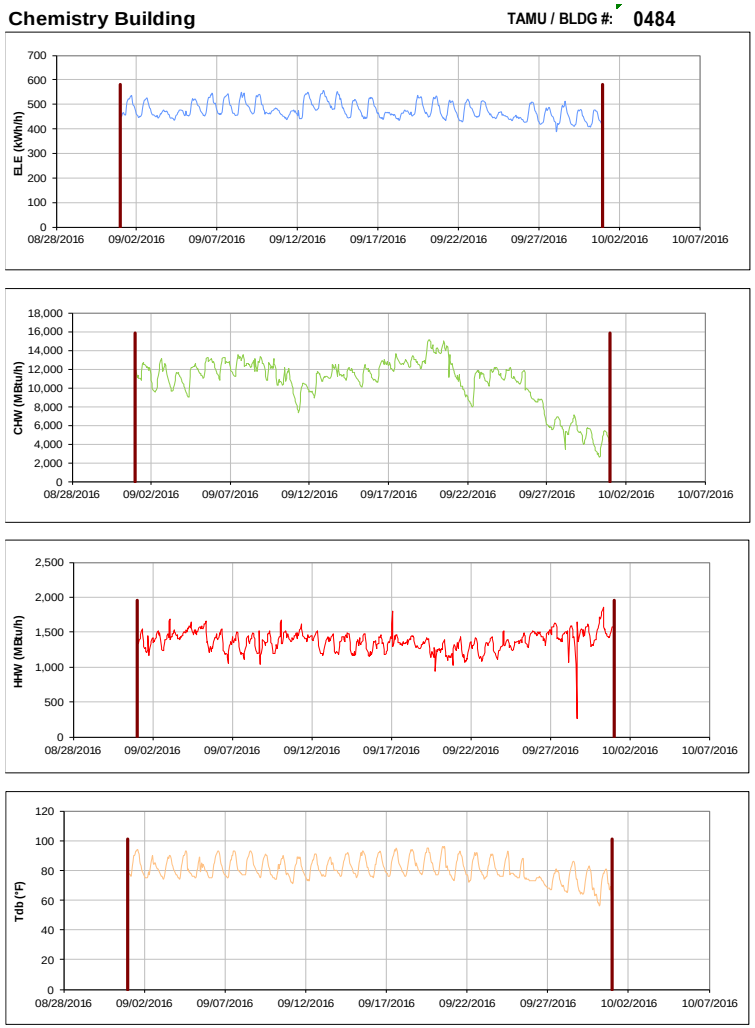


Figure III-96 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Chemistry Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

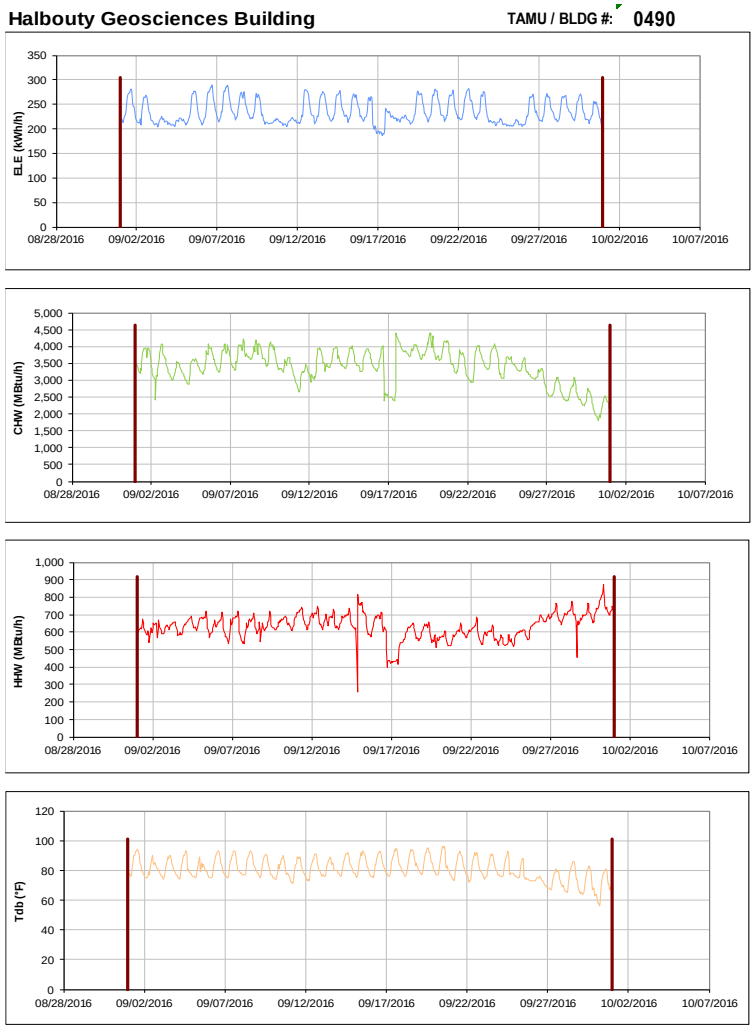


Figure III-97 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Halbouty Geosciences Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

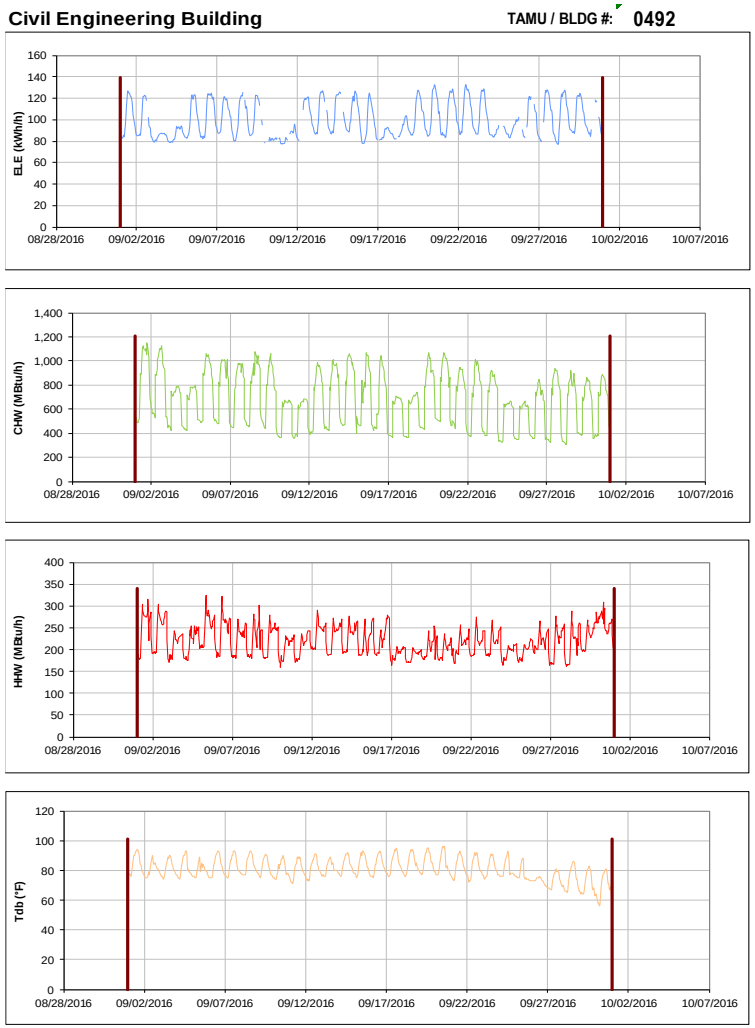


Figure III-98 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Civil Engineering Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

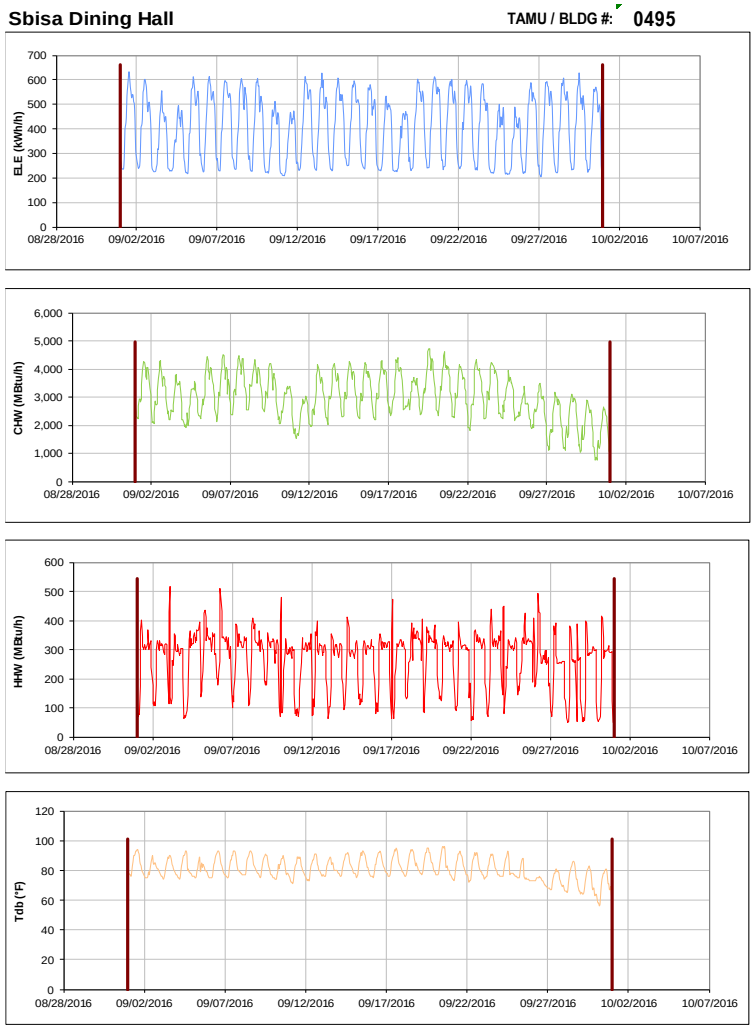


Figure III-99 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Sbisa Dining Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

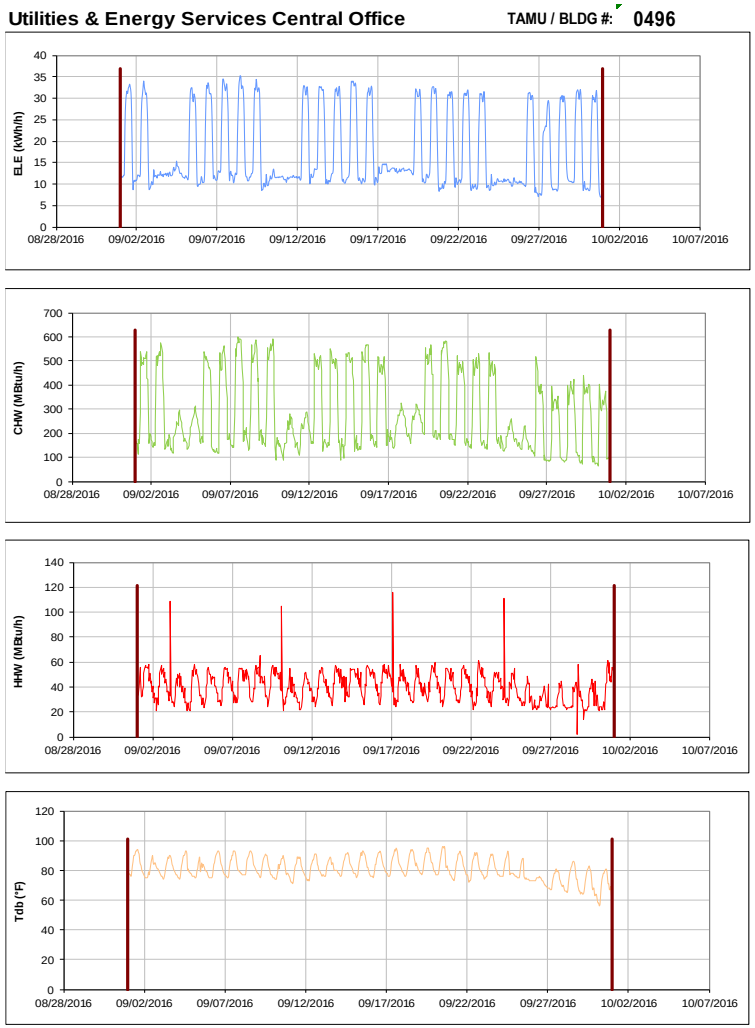


Figure III-100 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Central Office during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

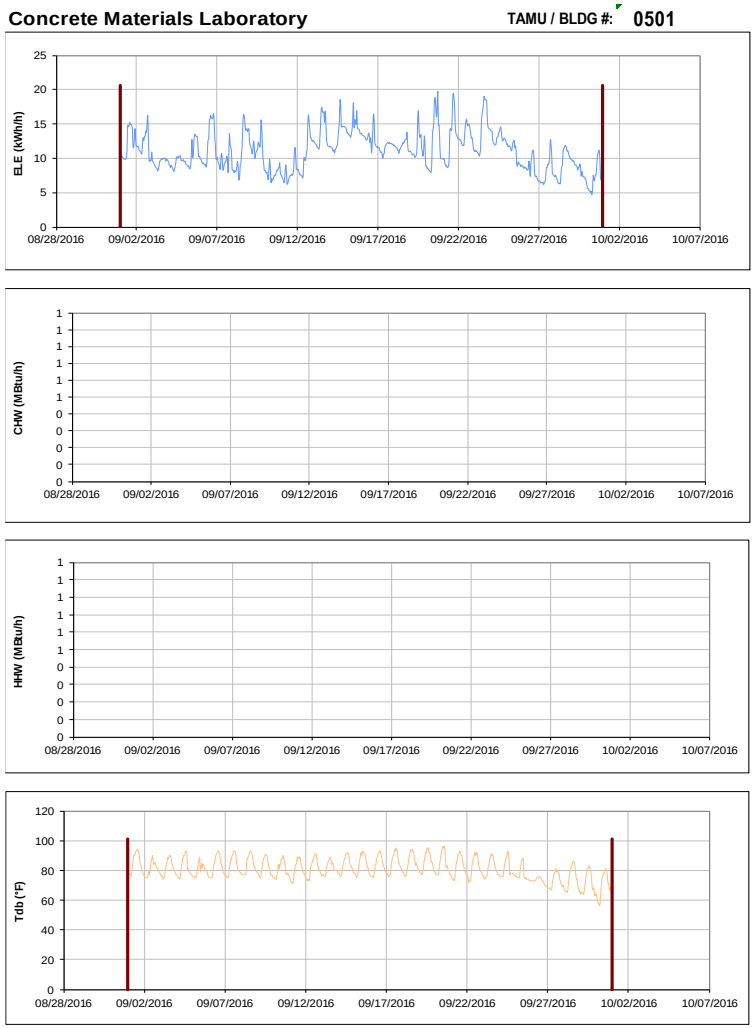


Figure III-101 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Concrete Materials Laboratory during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

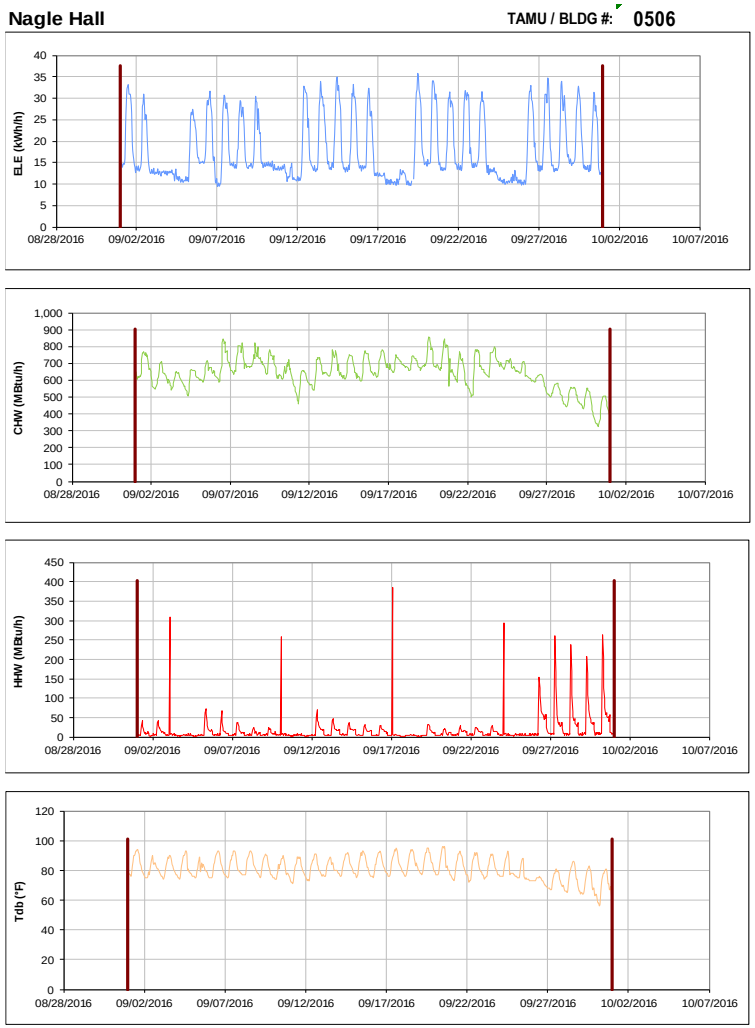


Figure III-102 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nagle Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

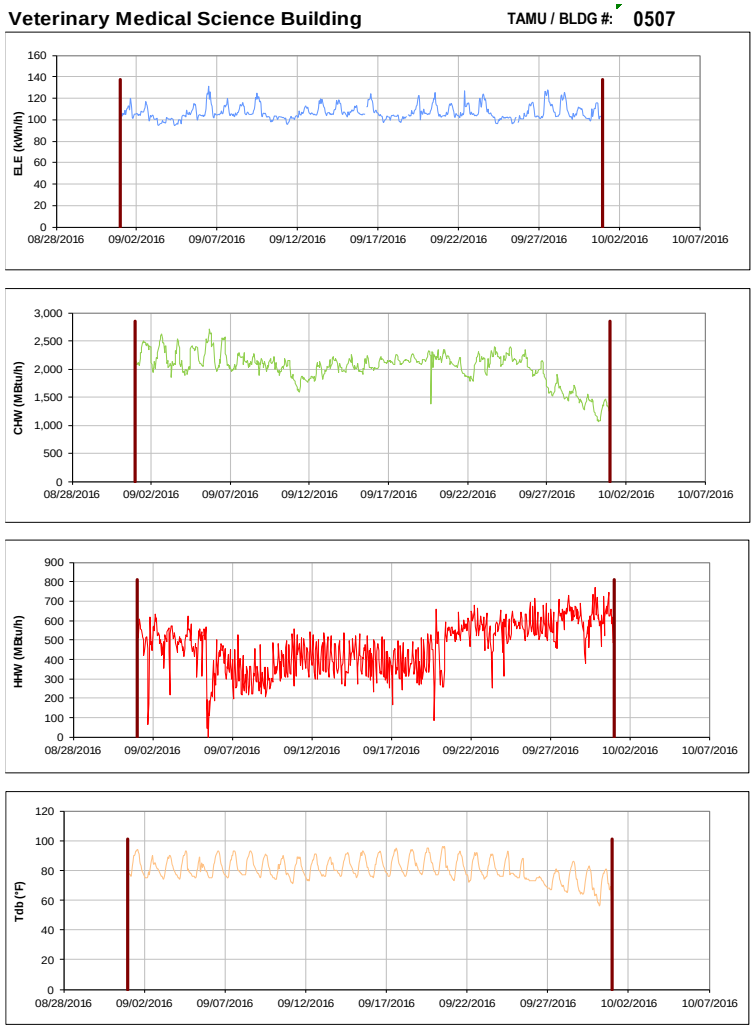


Figure III-103 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medical Science Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

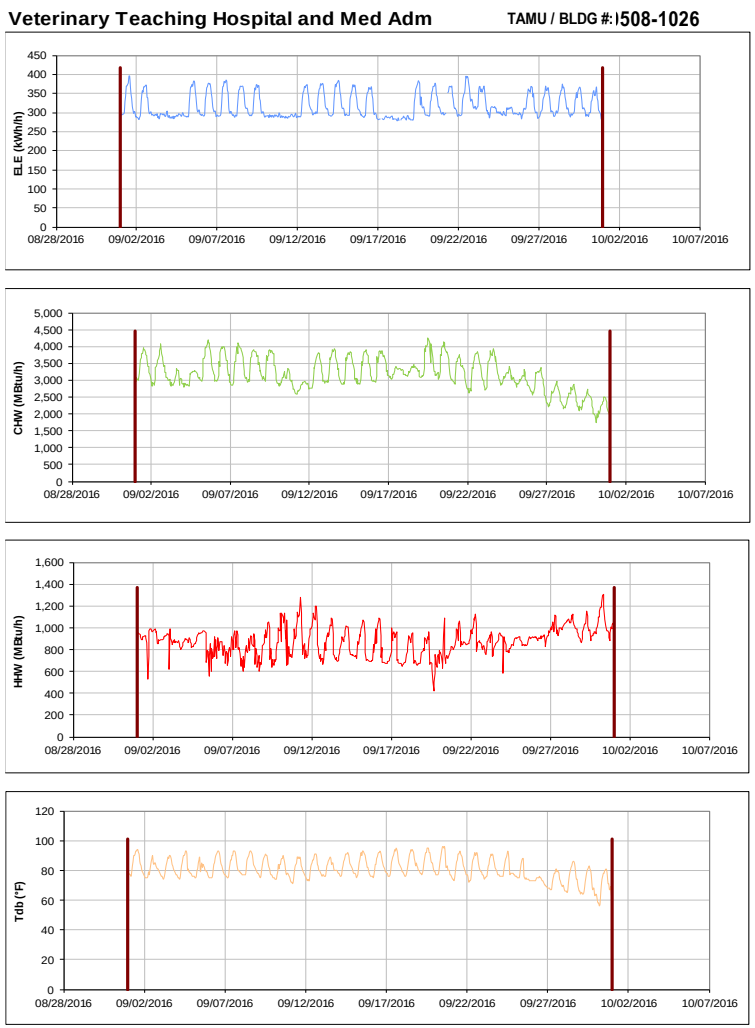


Figure III-104 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Teaching Hospital and Med Adm during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

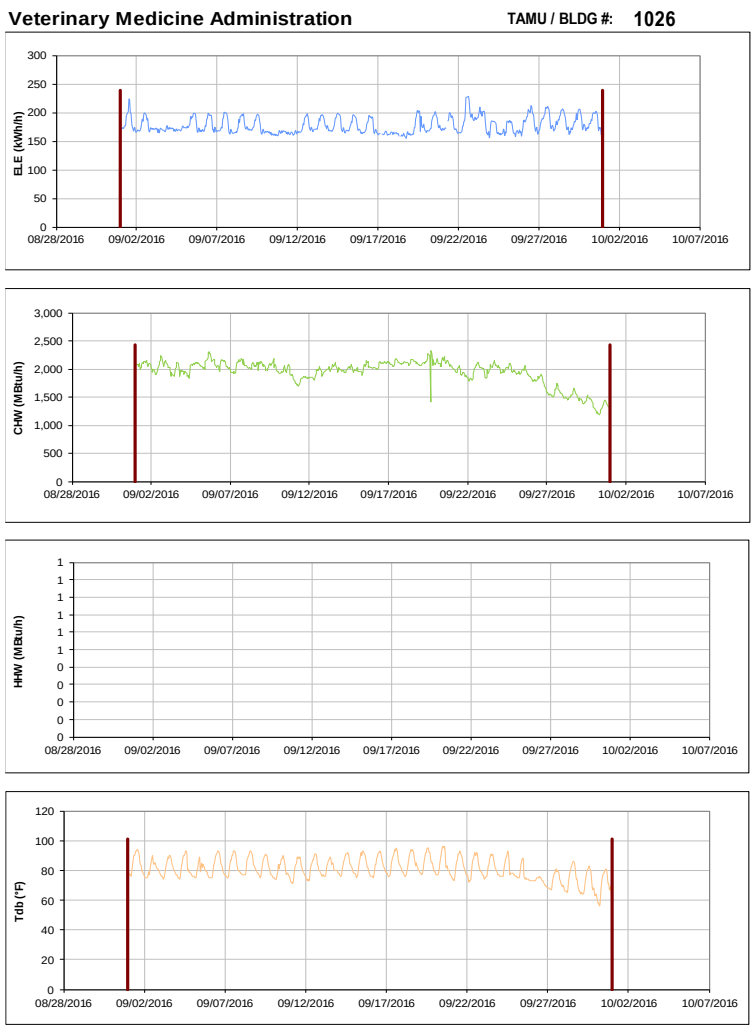


Figure III-105 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Administration during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

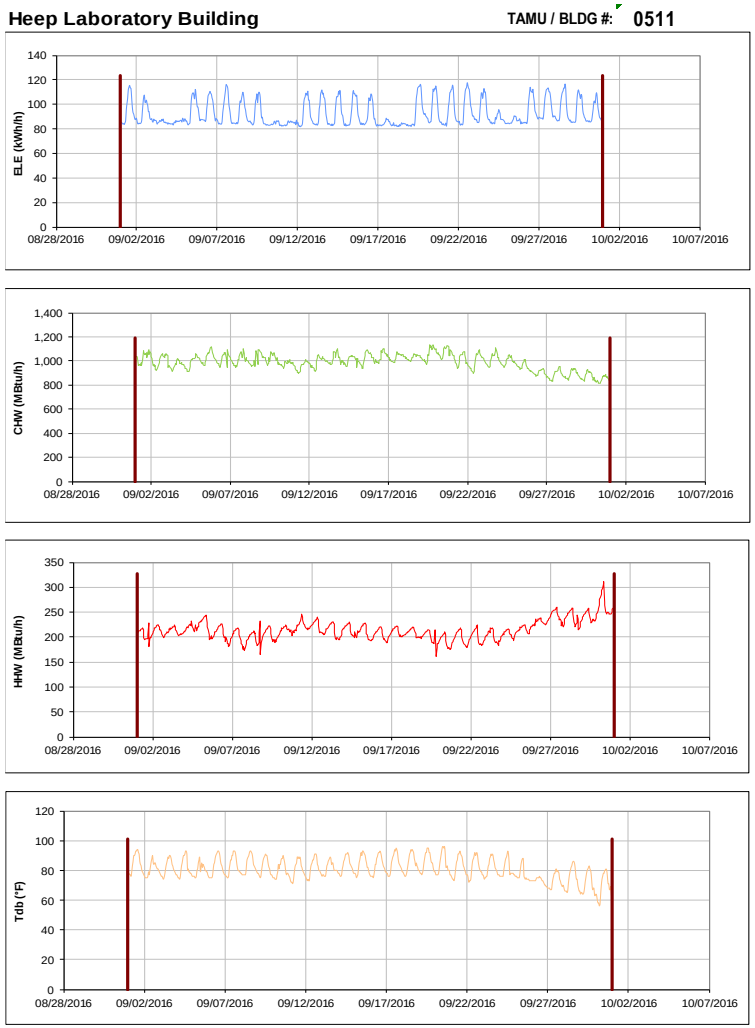


Figure III-106 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Laboratory Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

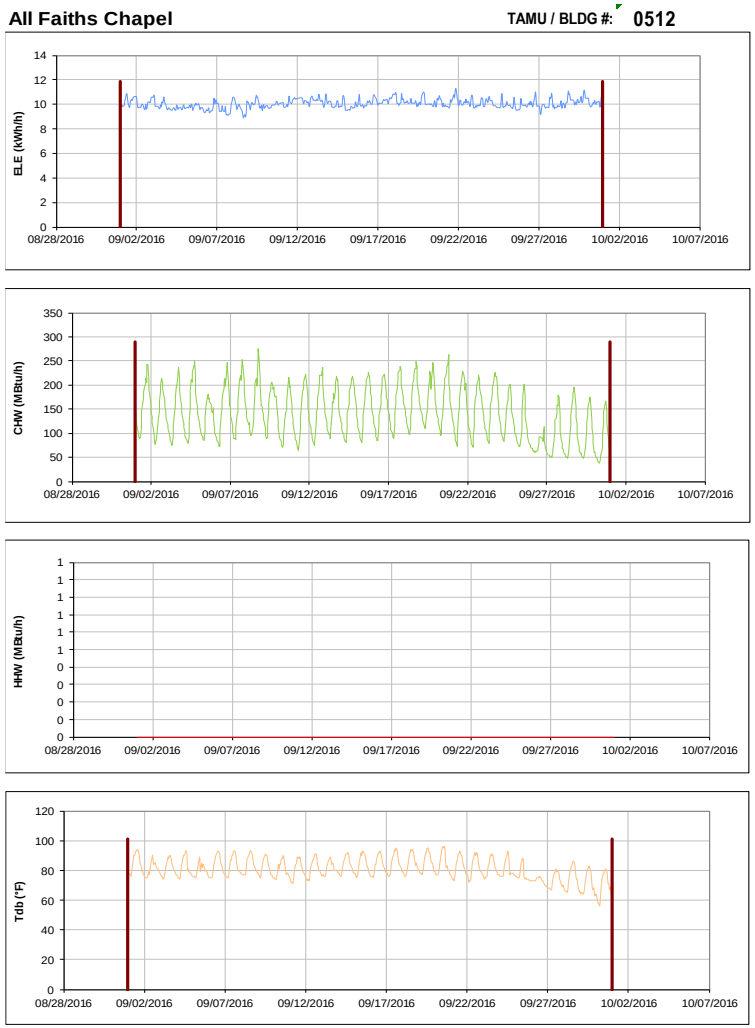


Figure III-107 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for All Faiths Chapel during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

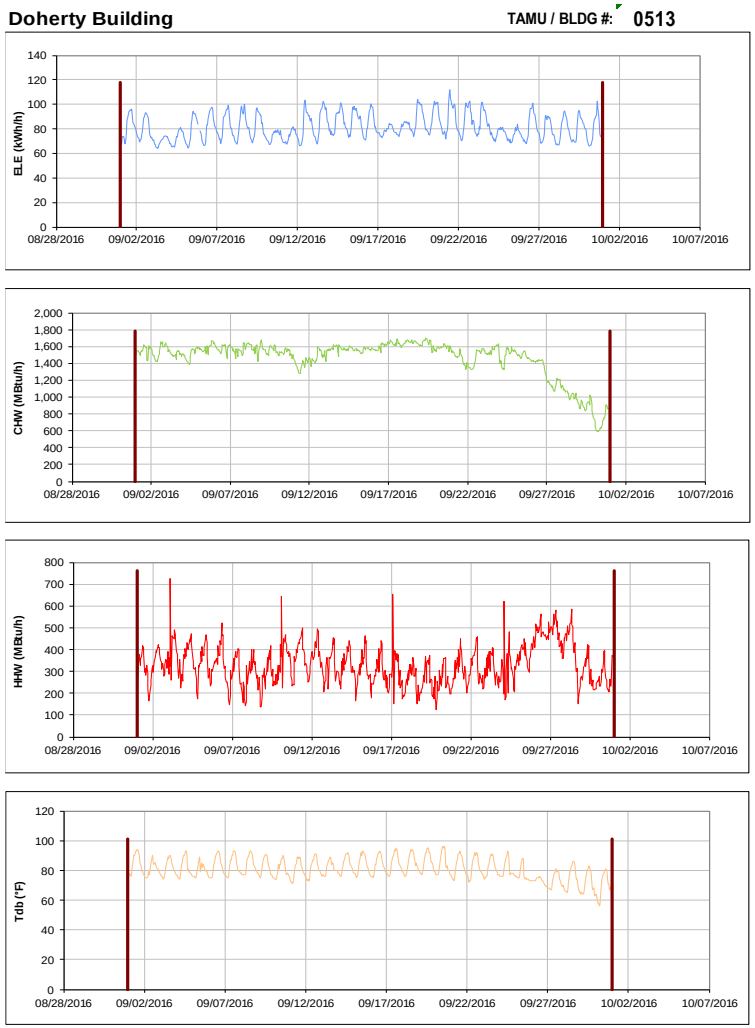


Figure III-108 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Doherty Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

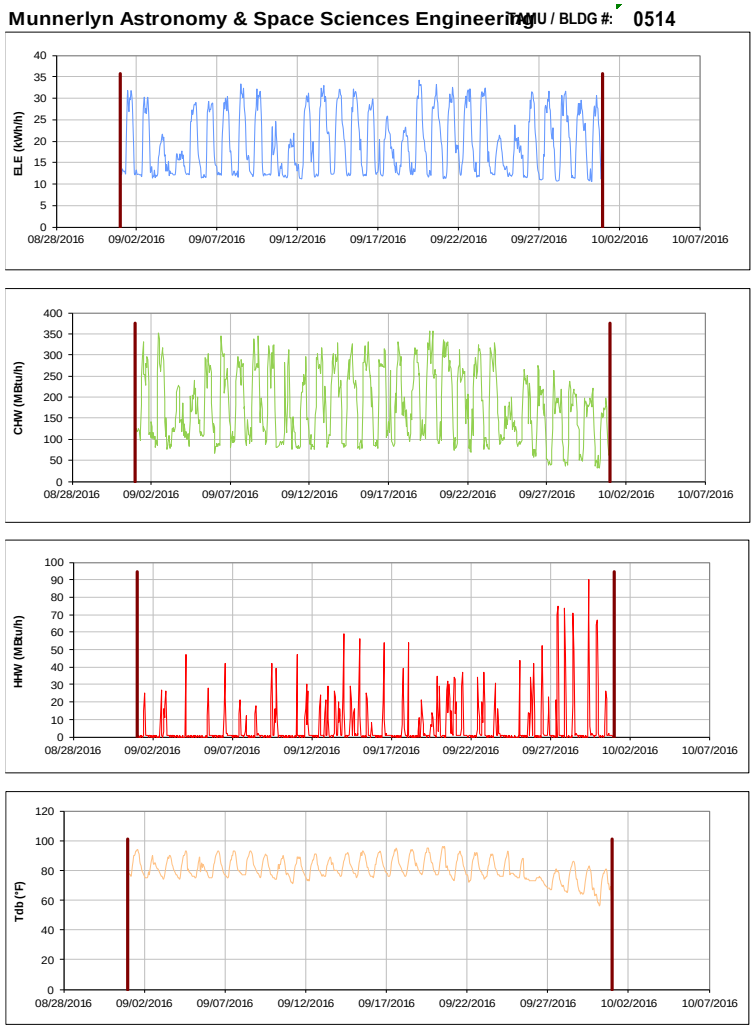


Figure III-109 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Munnerlyn Astronomy & Space Sciences Engineering during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

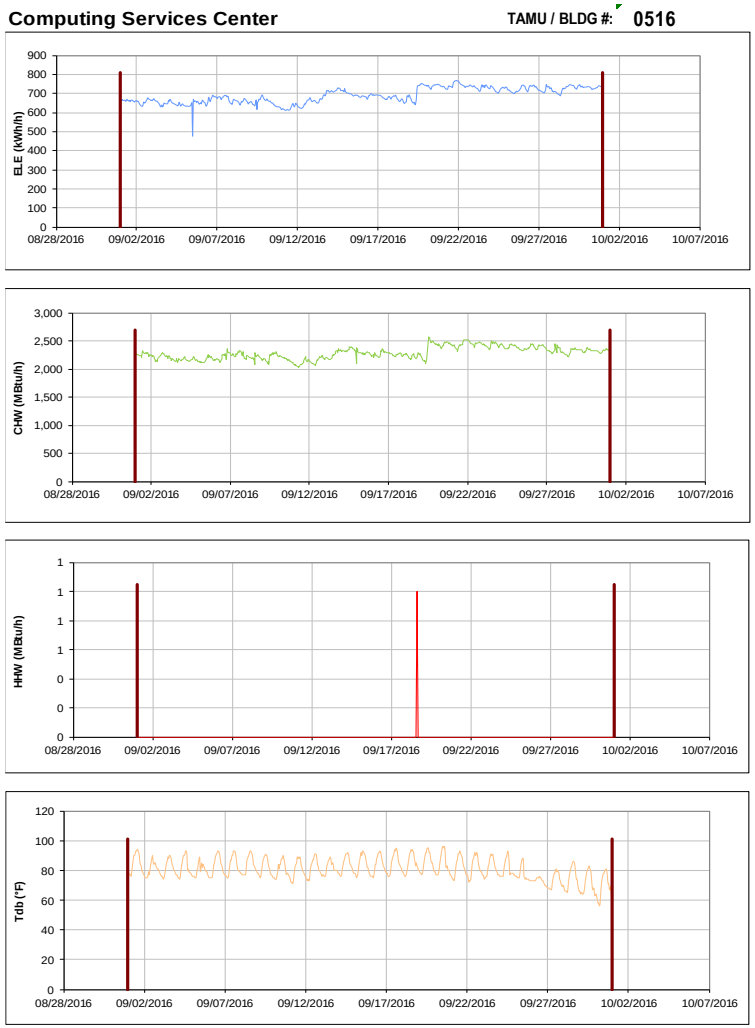


Figure III-110 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Computing Services Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

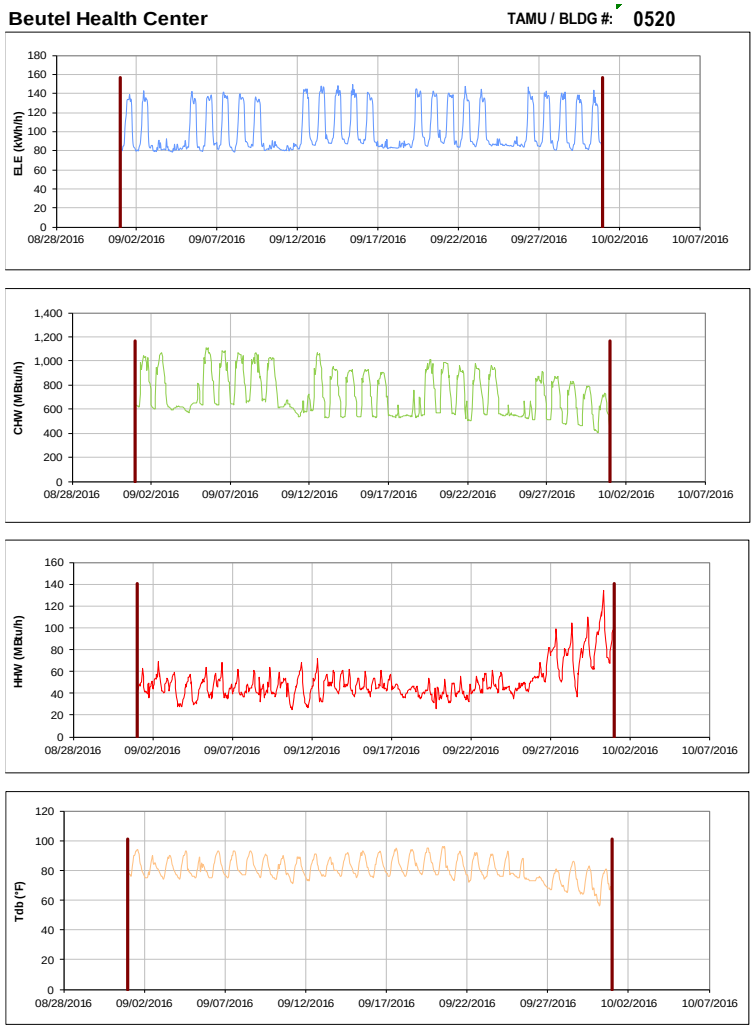


Figure III-111 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Beutel Health Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

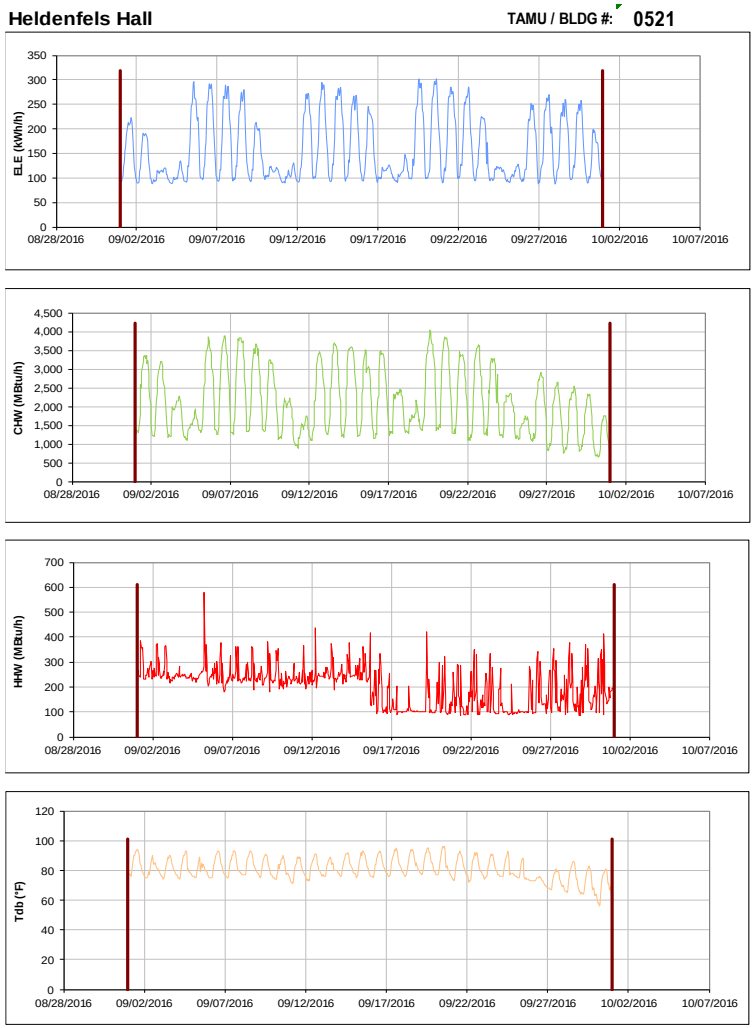


Figure III-112 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heldenfels Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

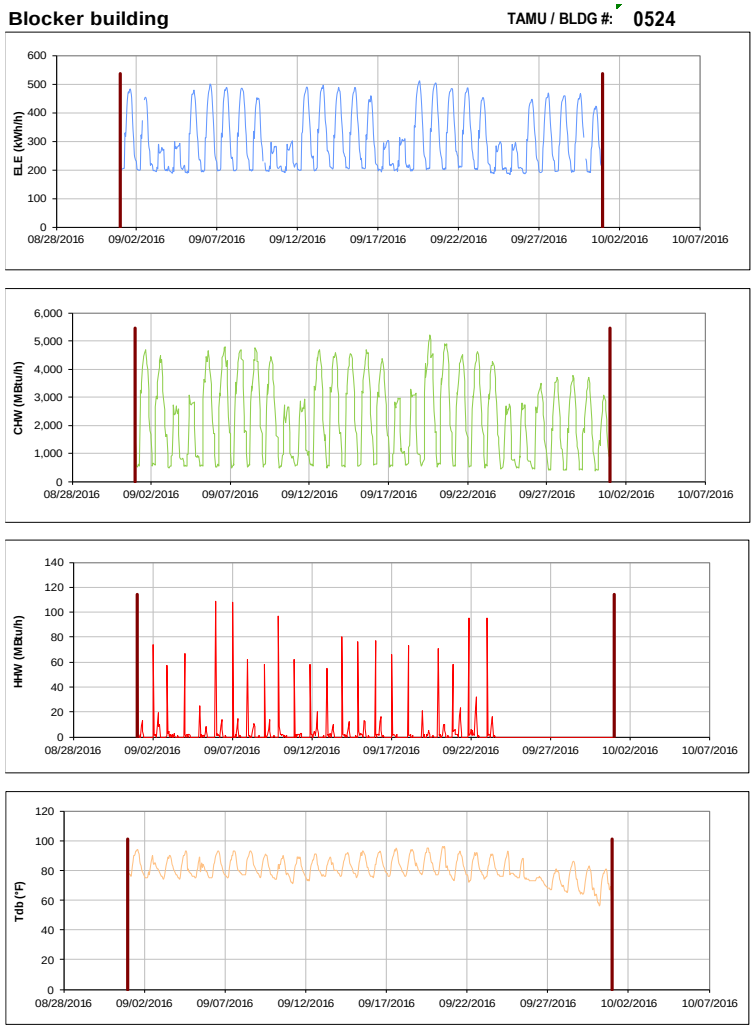


Figure III-113 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Blocker building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

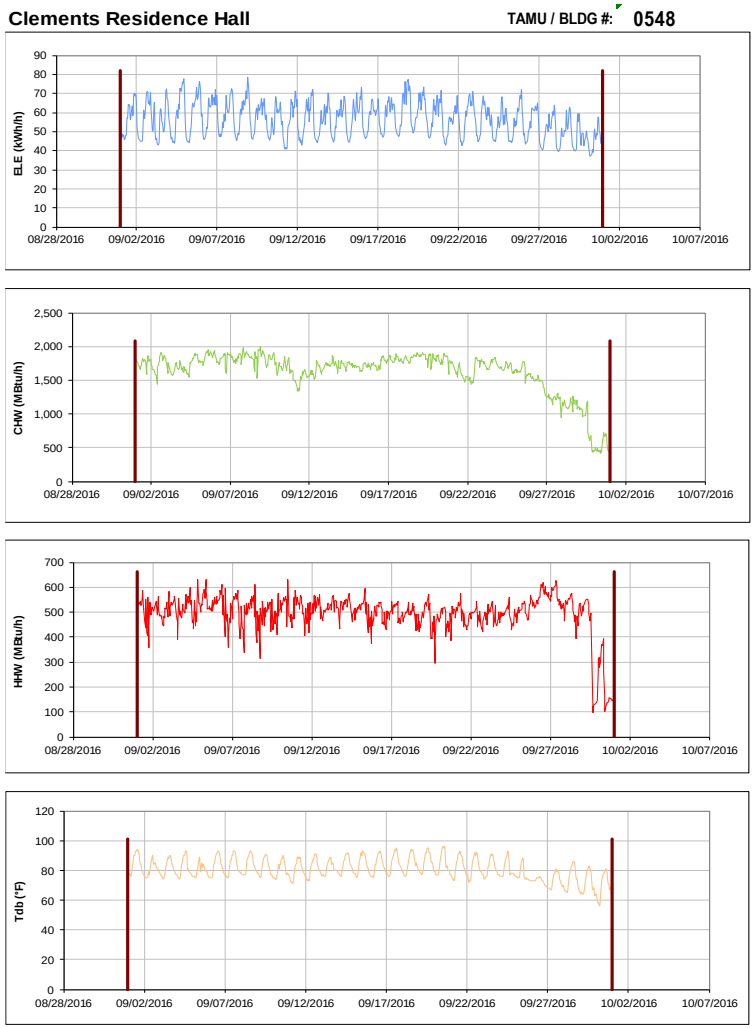


Figure III-114 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Clements Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

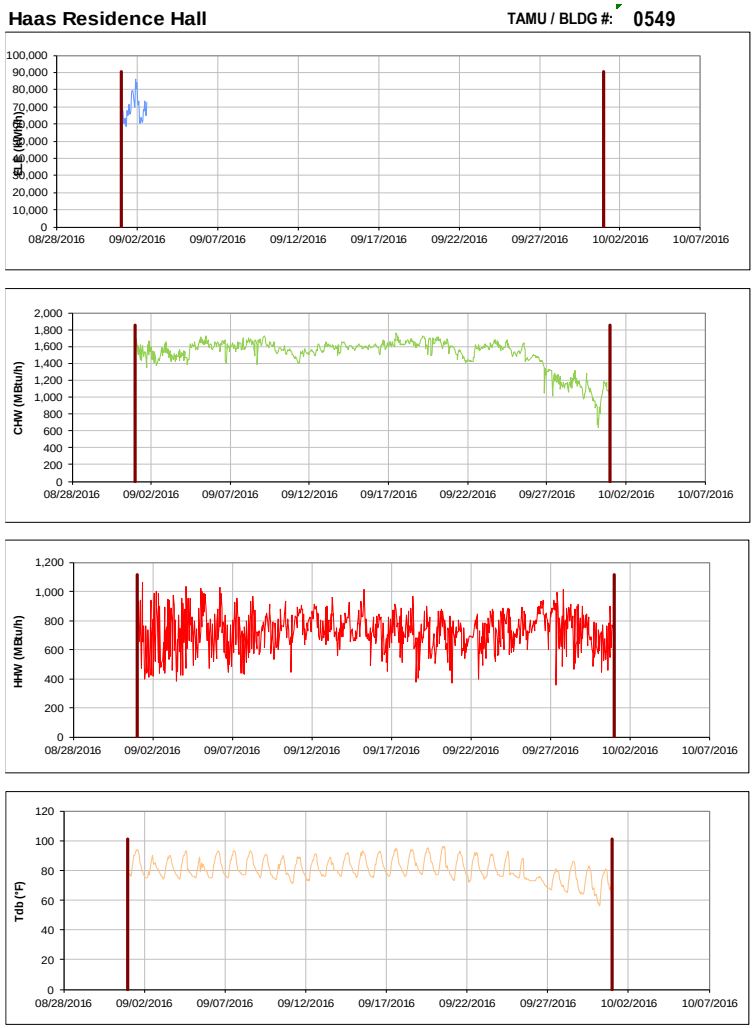


Figure III-115 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Haas Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

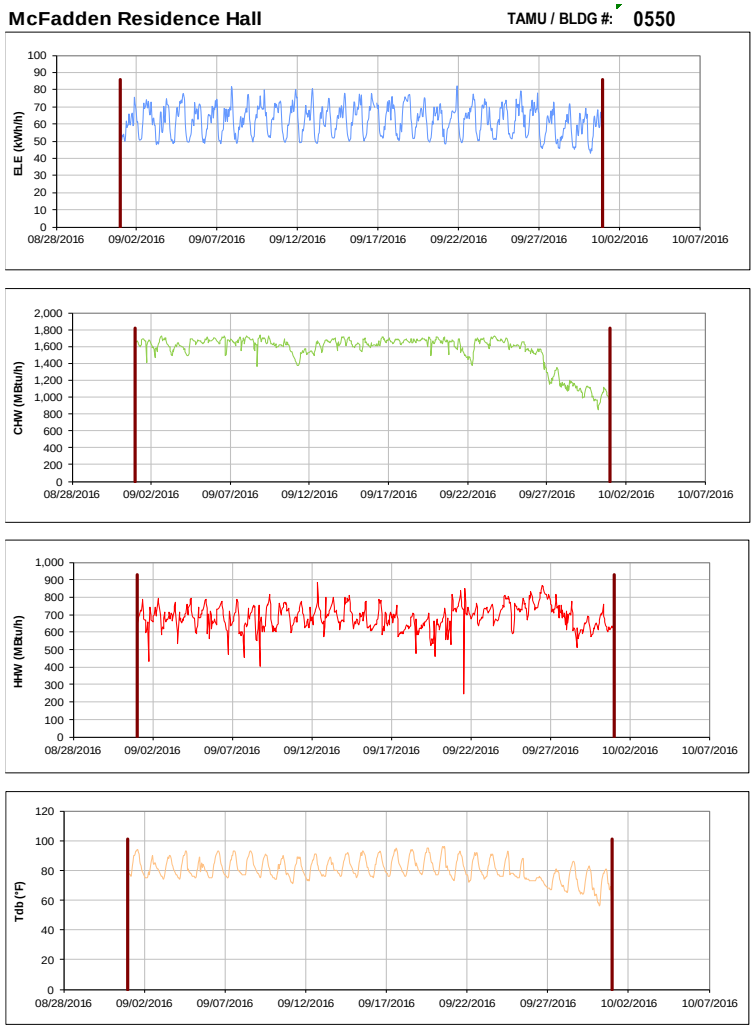


Figure III-116 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McFadden Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

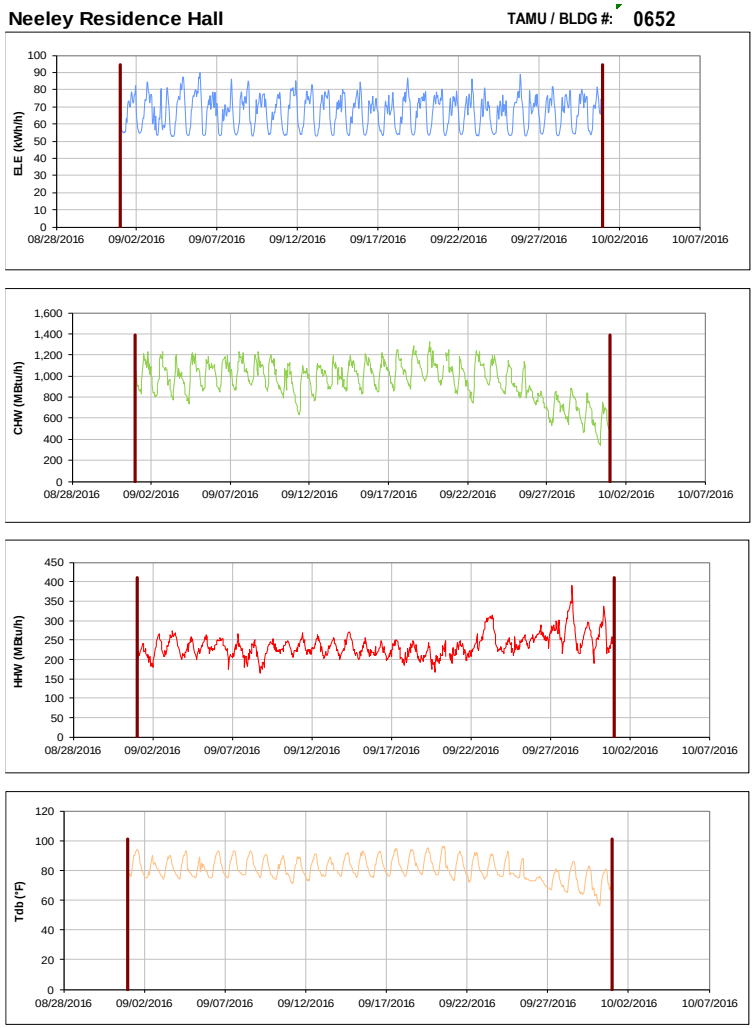


Figure III-117 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Neeley Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

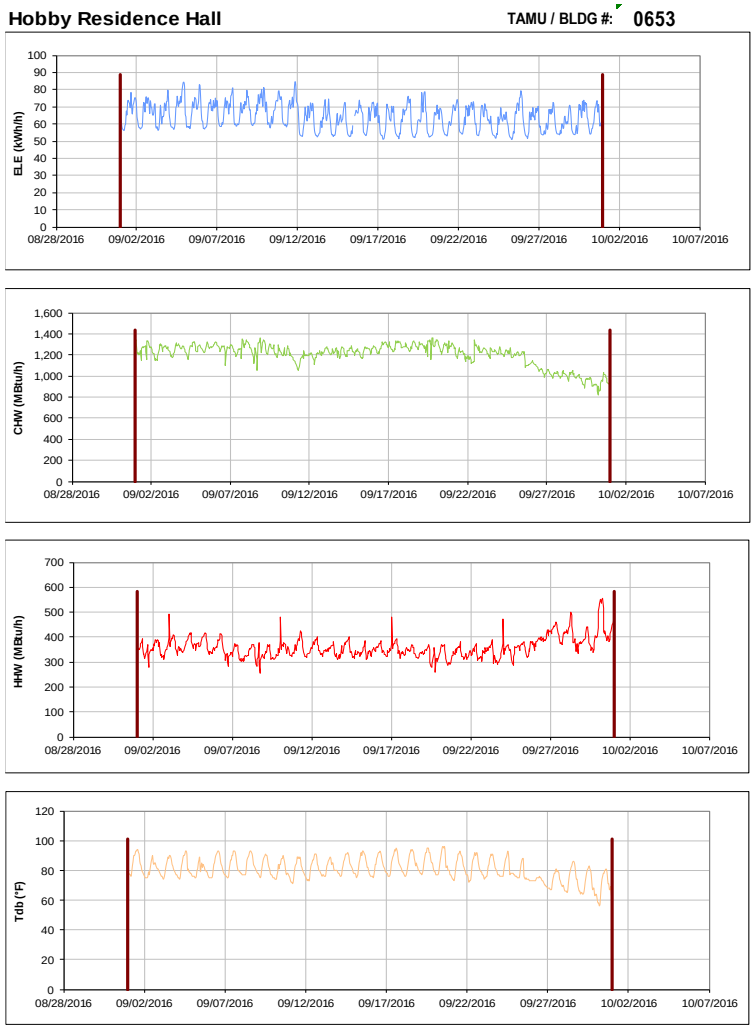


Figure III-118 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hobby Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

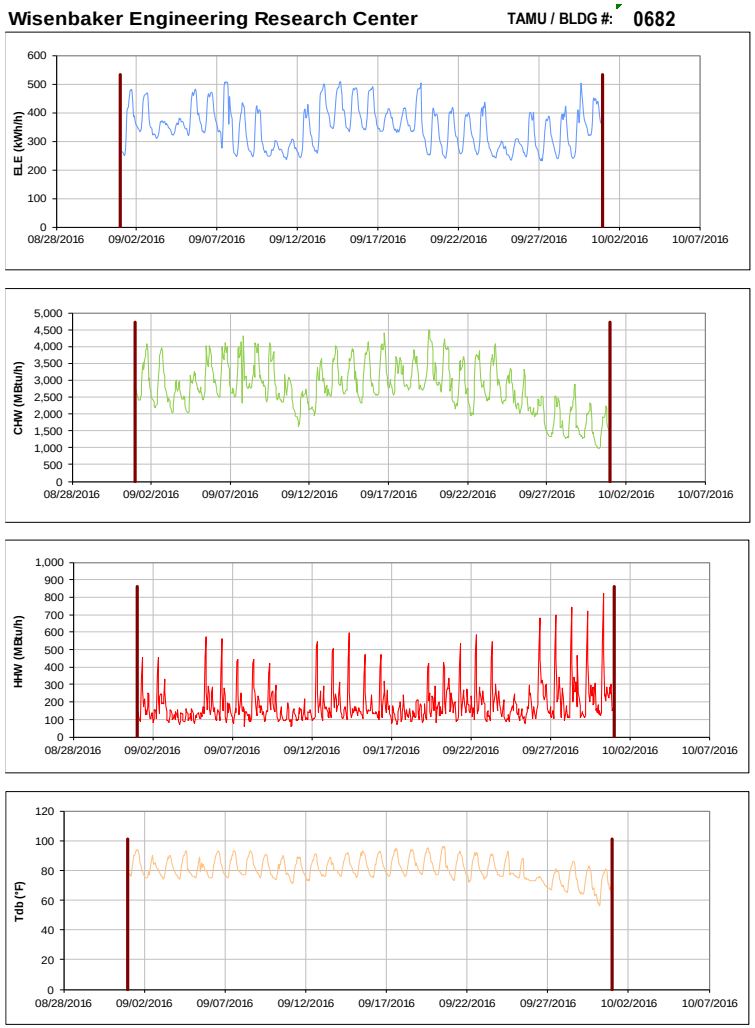


Figure III-119 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wisenbaker Engineering Research Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

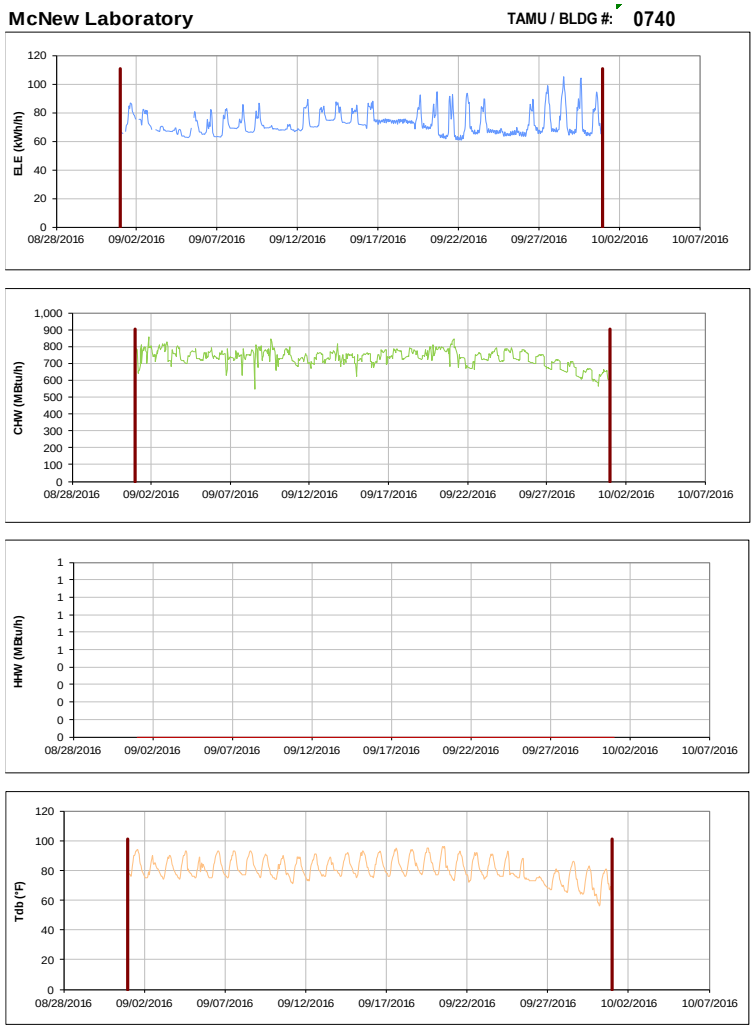


Figure III-120 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for McNew Laboratory during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

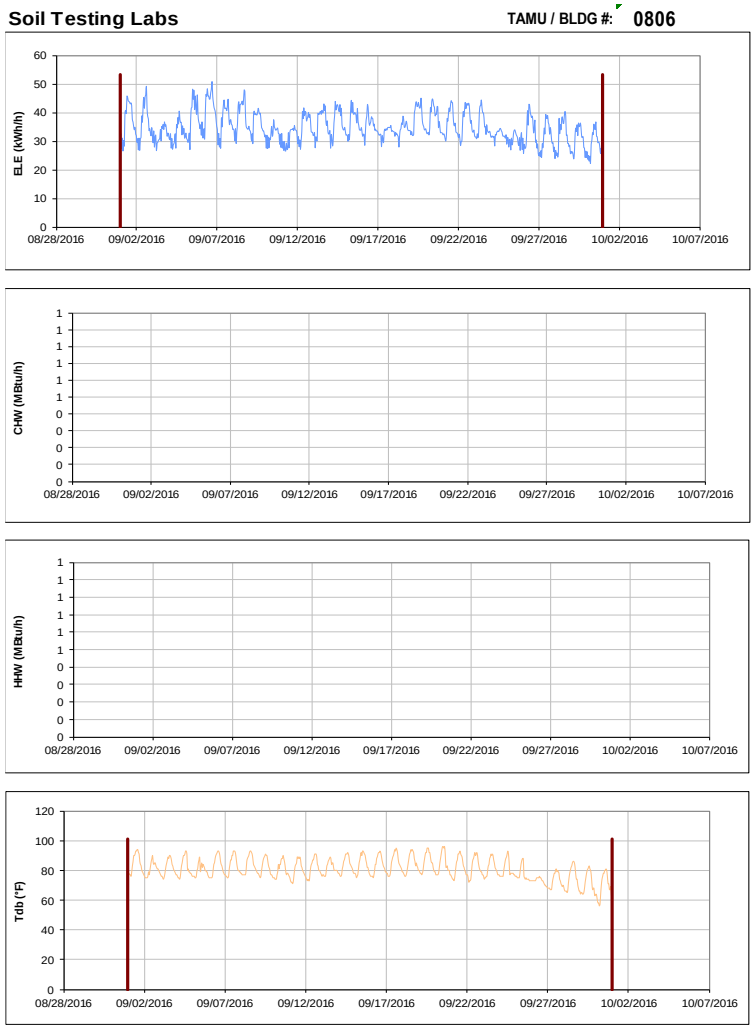


Figure III-121 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Soil Testing Labs during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

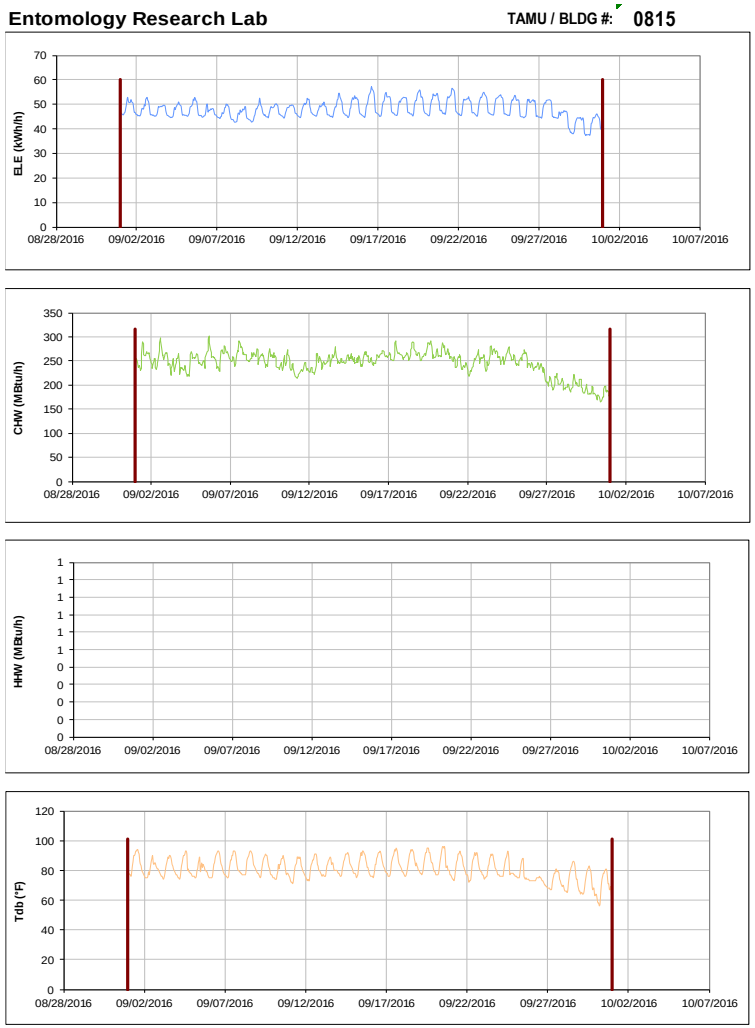


Figure III-122 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Entomology Research Lab during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

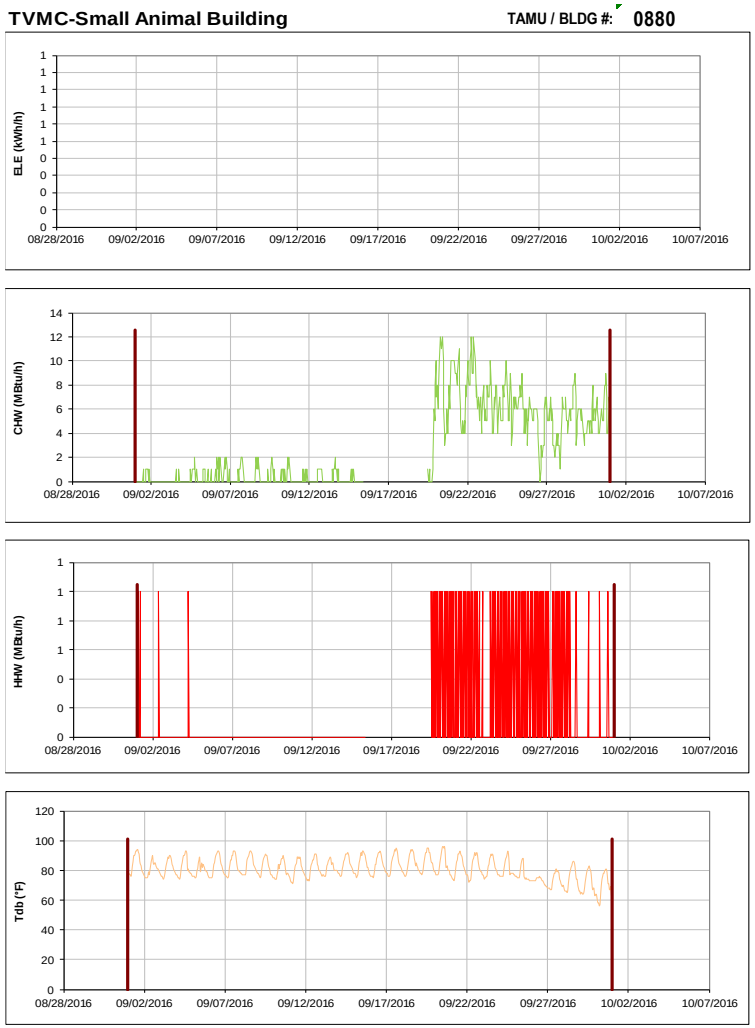


Figure III-123 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TVMC-Small Animal Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

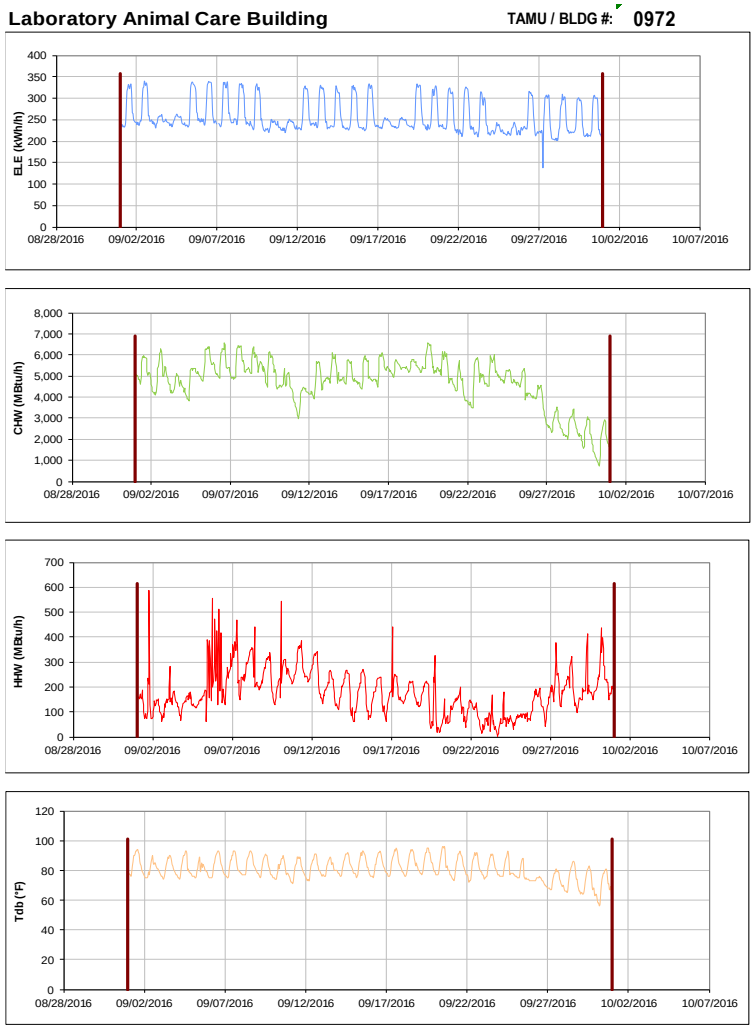


Figure III-124 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Laboratory Animal Care Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

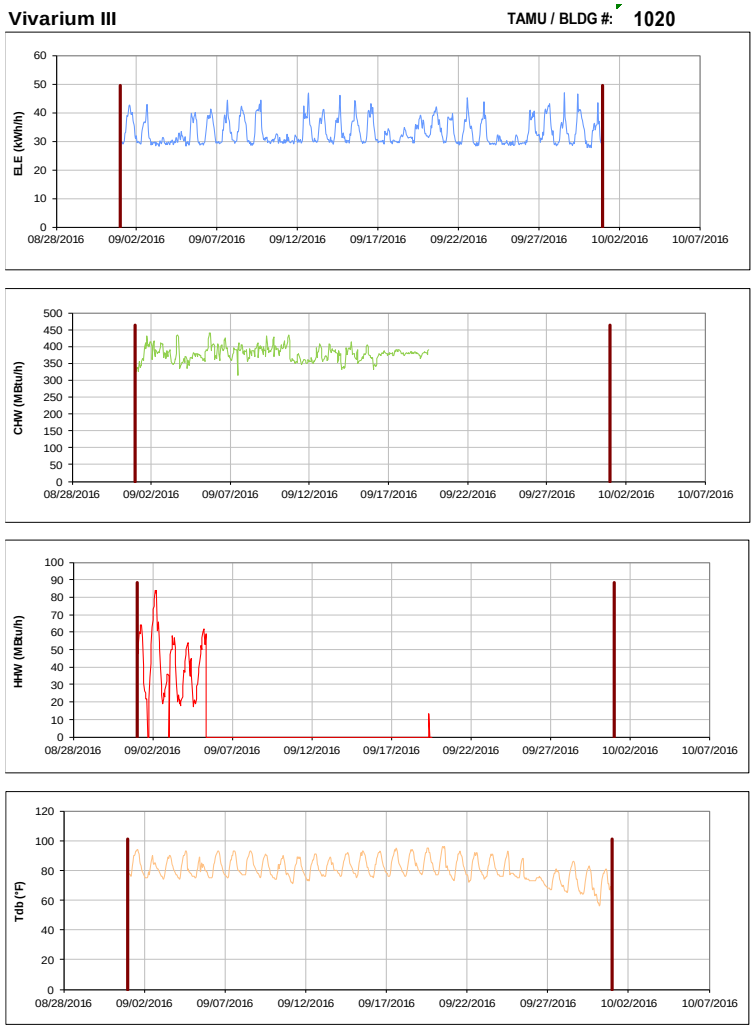


Figure III-125 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vivarium III during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

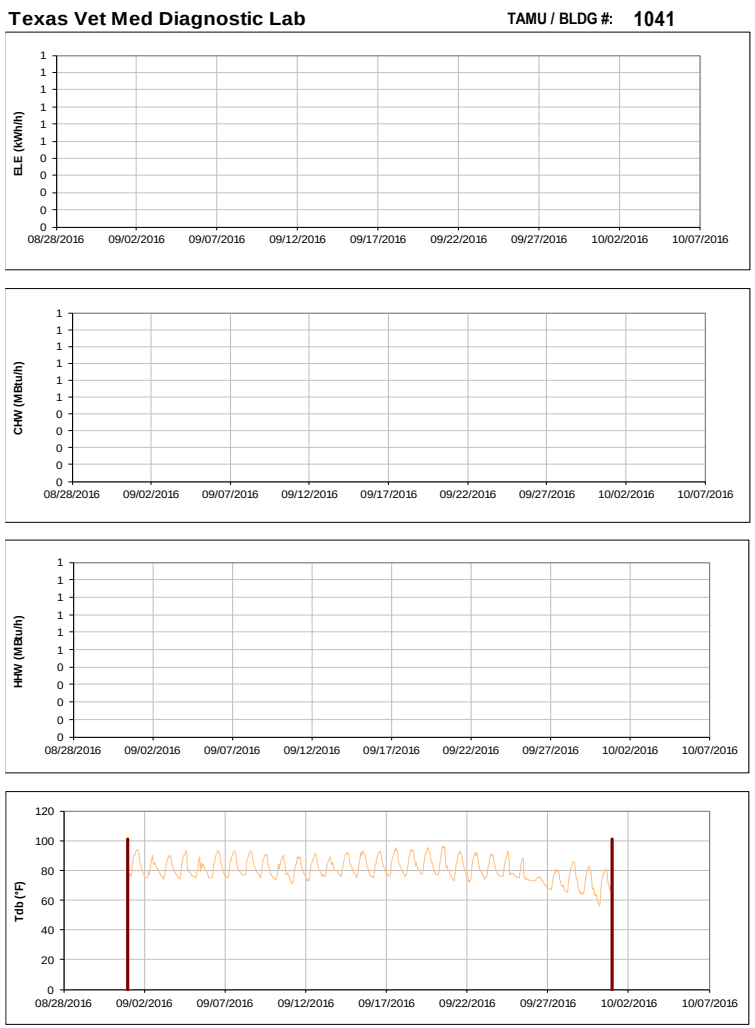


Figure III-126 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Vet Med Diagnostic Lab during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

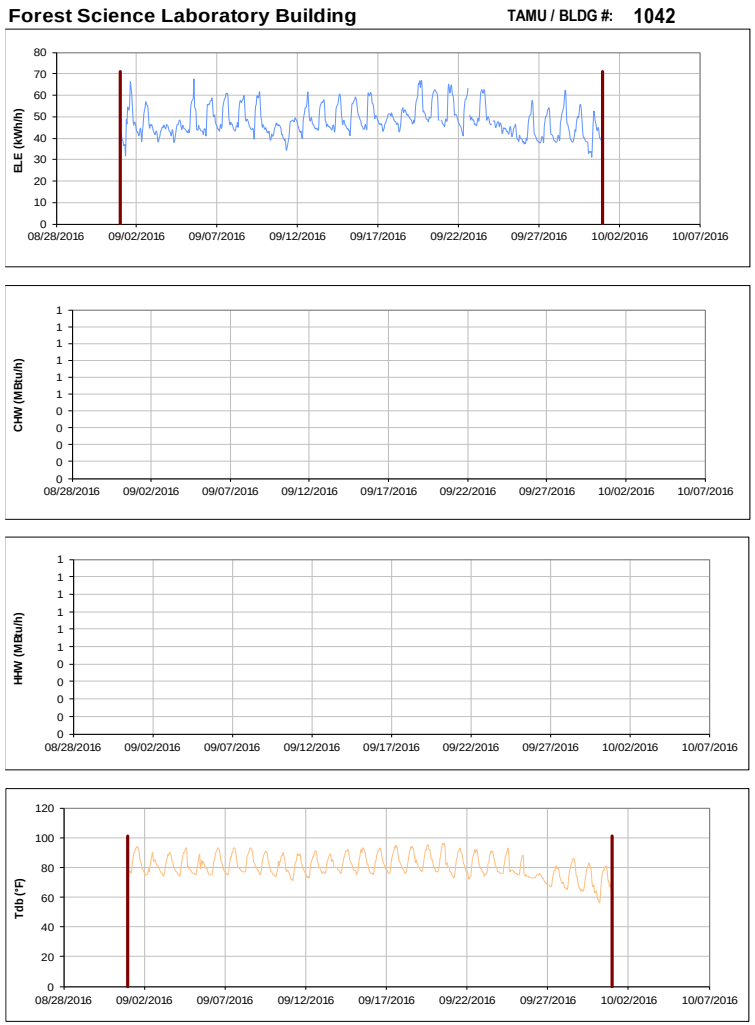


Figure III-127 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Forest Science Laboratory Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

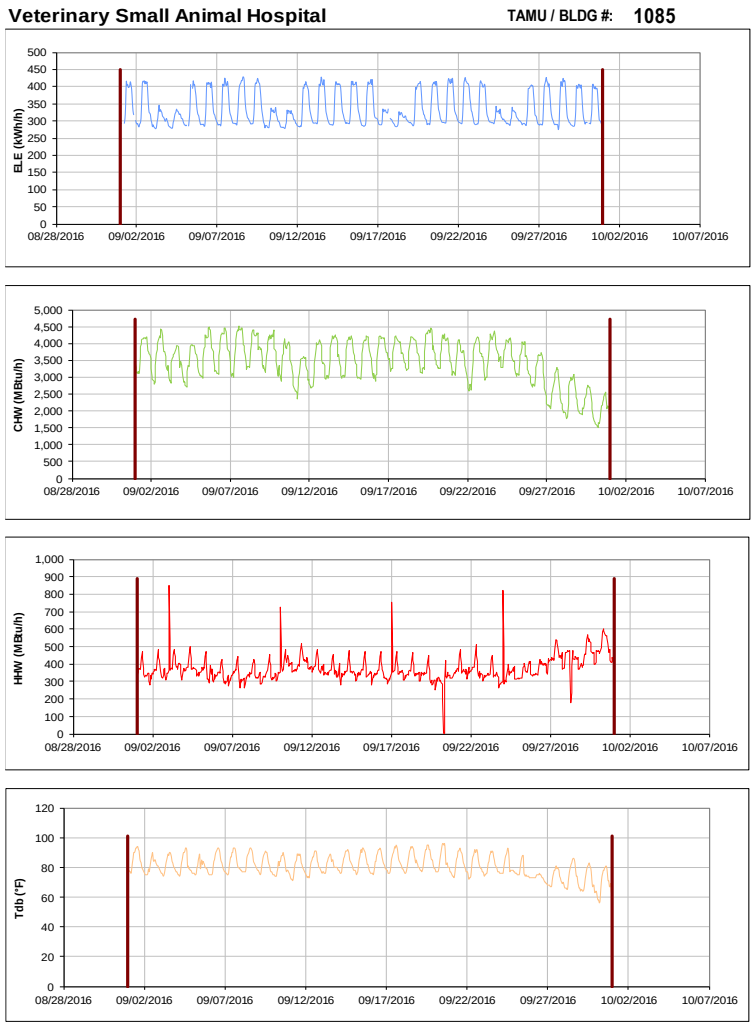


Figure III-128 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Small Animal Hospital during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

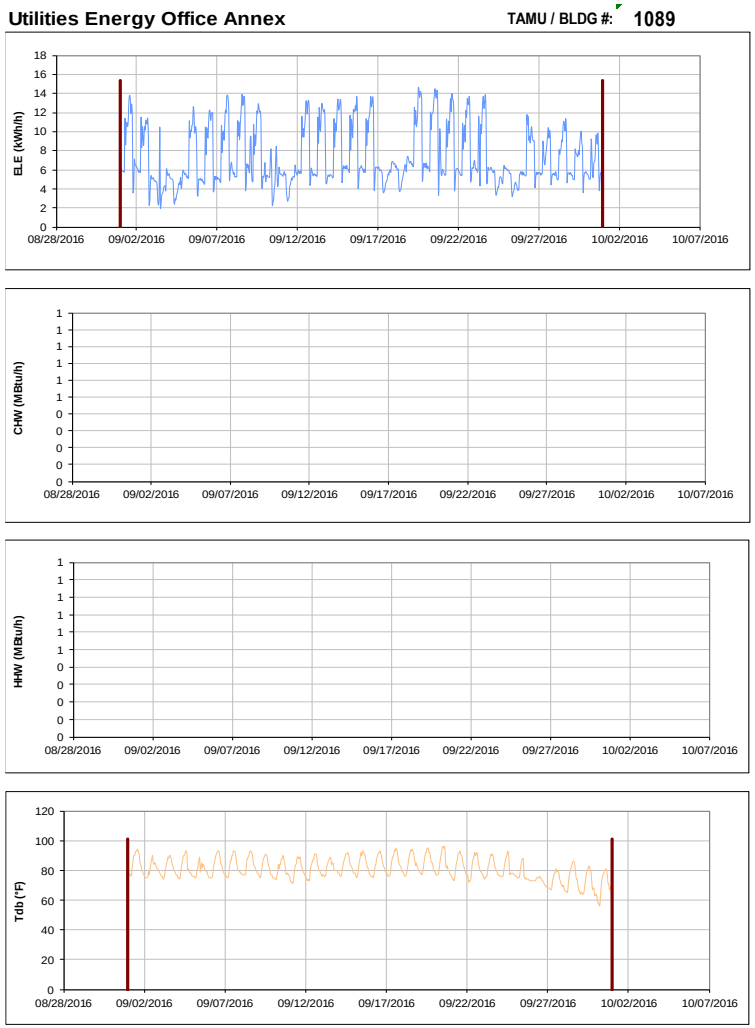


Figure III-129 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities Energy Office Annex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

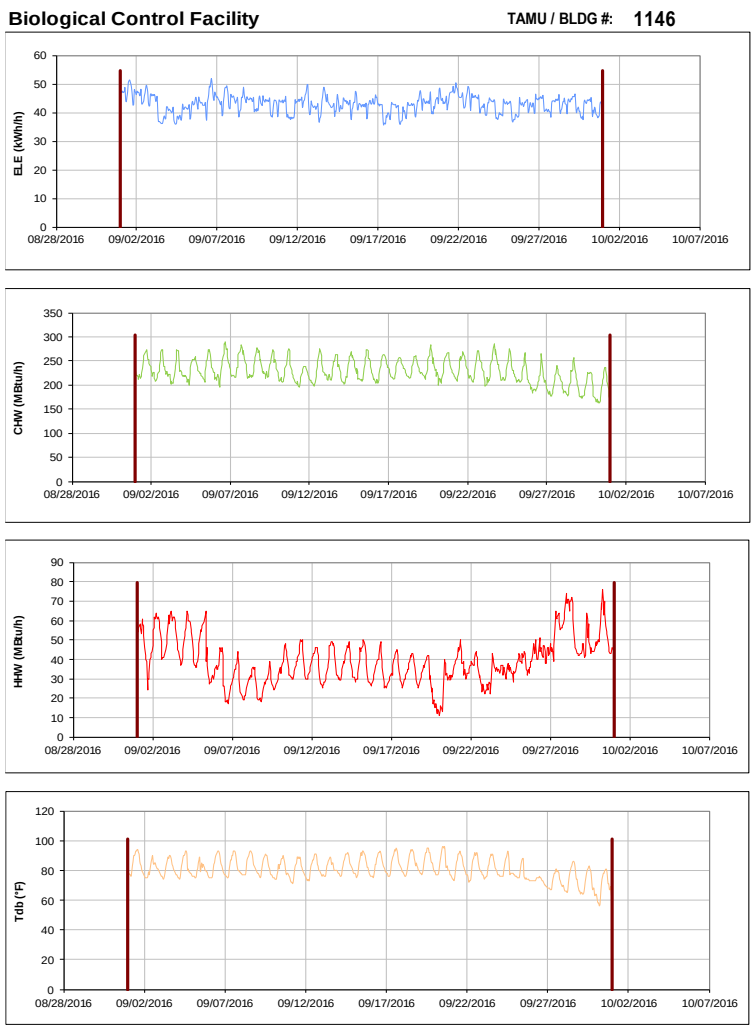


Figure III-130 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biological Control Facility during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

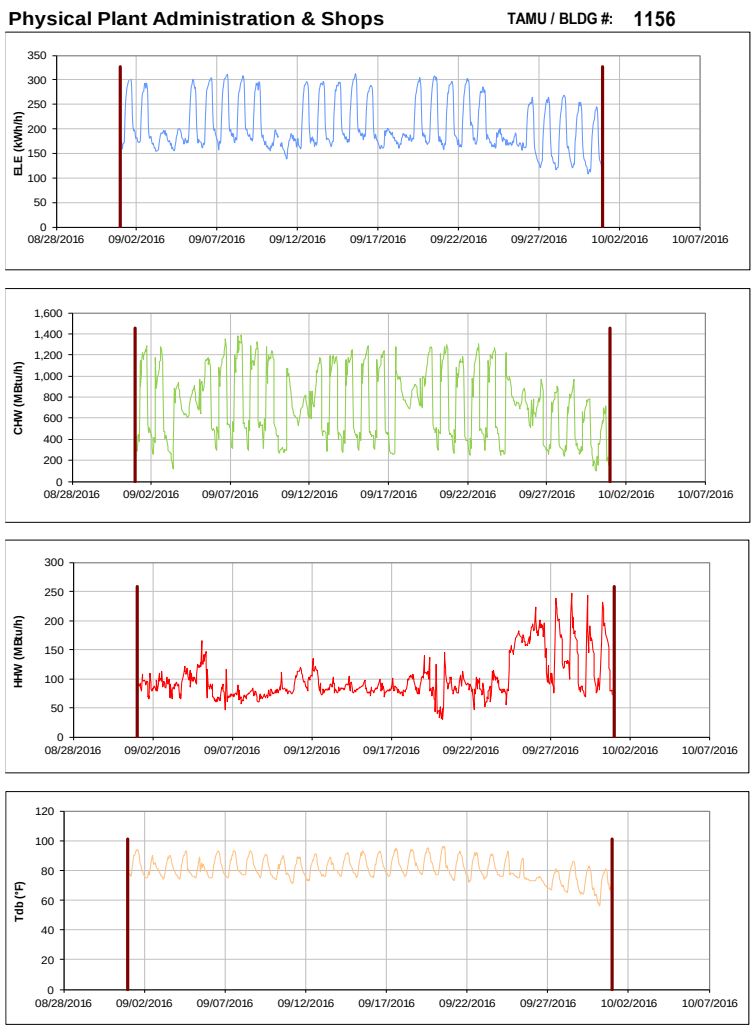


Figure III-131 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Plant Administration & Shops during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

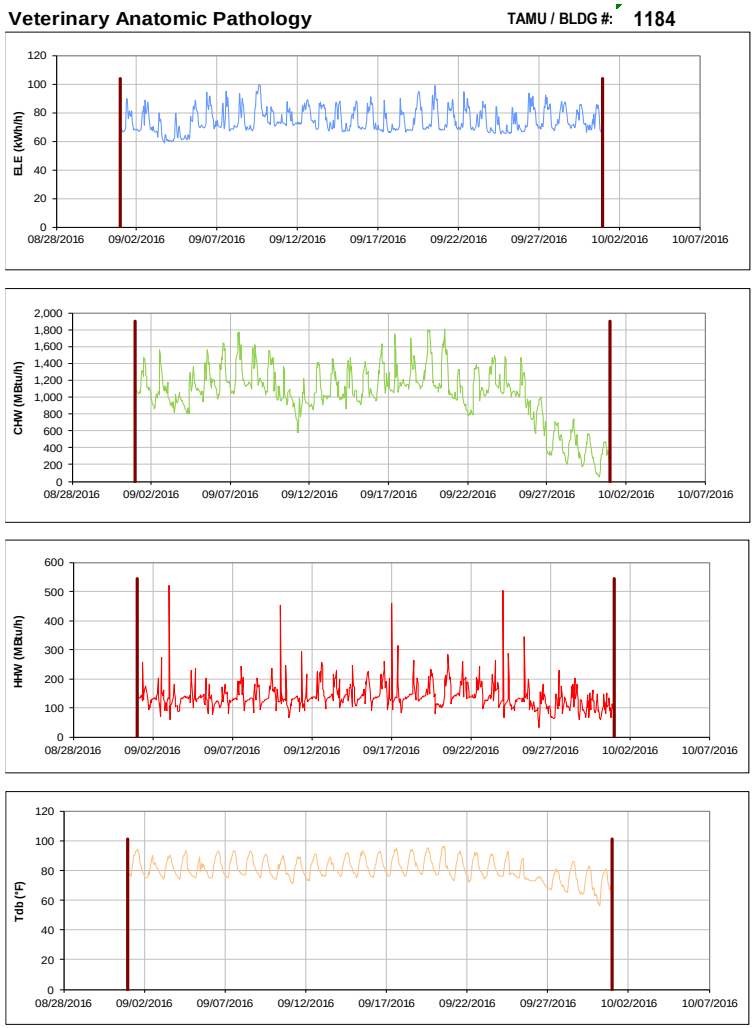


Figure III-132 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Anatomic Pathology during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

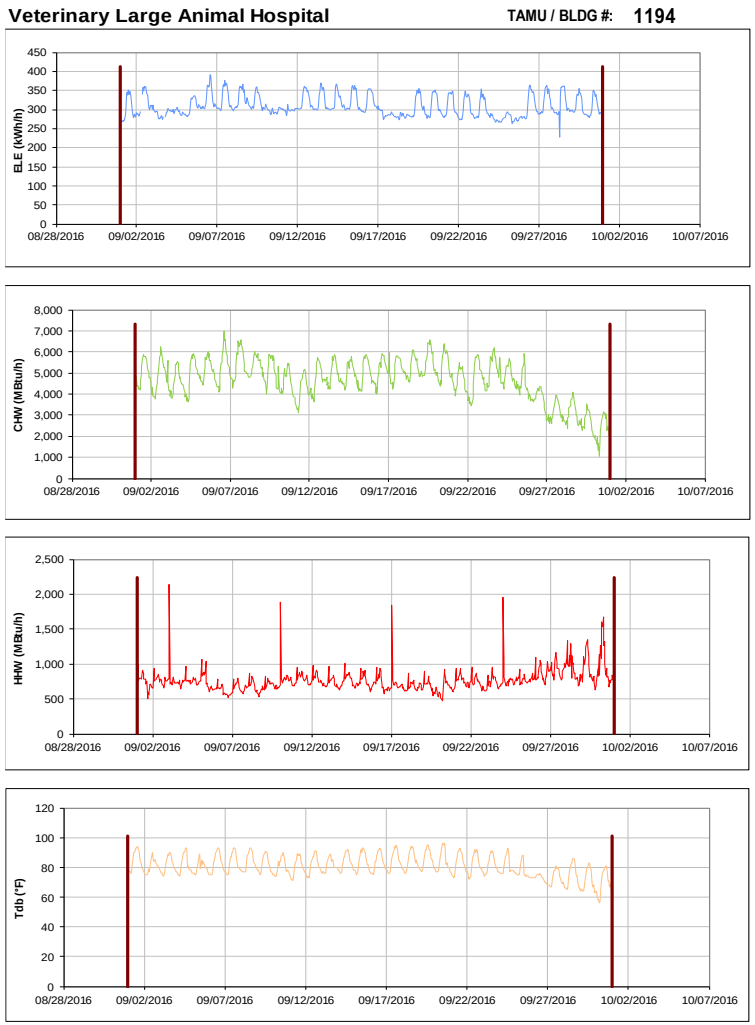


Figure III-133 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Large Animal Hospital during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

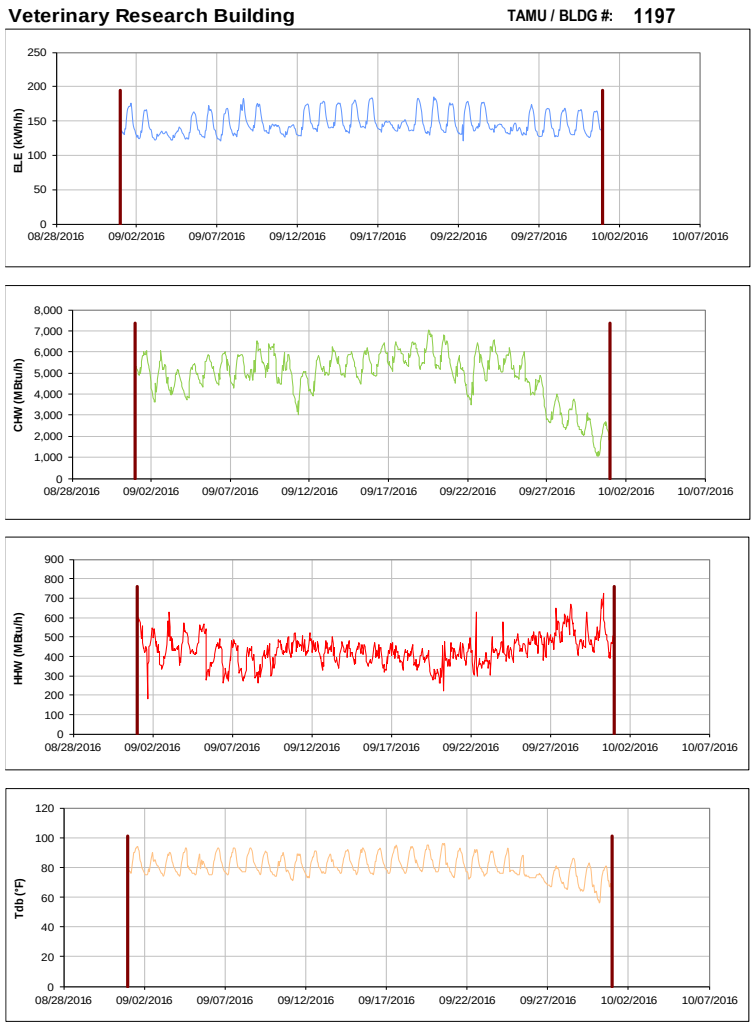


Figure III-134 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Research Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

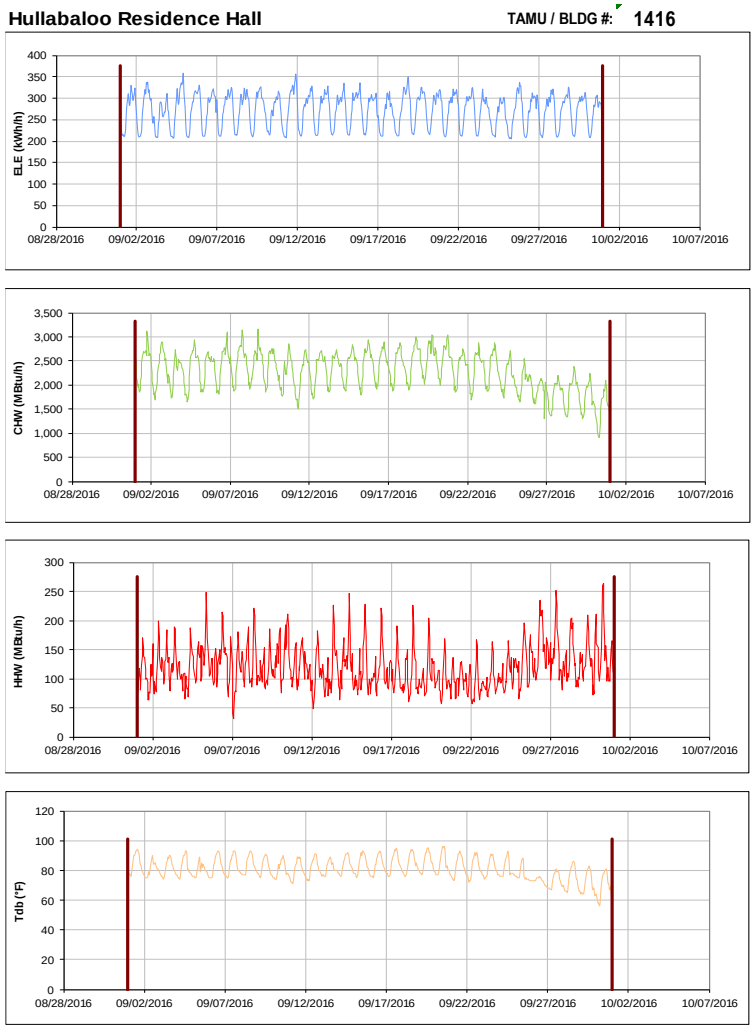


Figure III-135 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Hullabaloo Residence Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

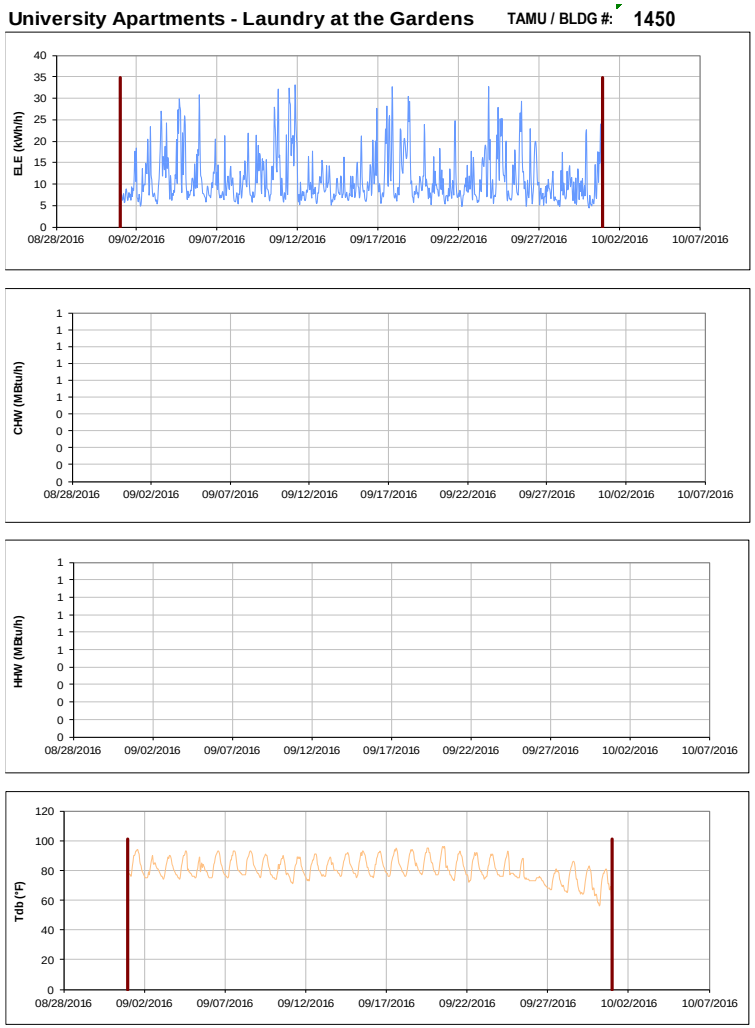


Figure III-136 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - Laundry at the Gardens during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

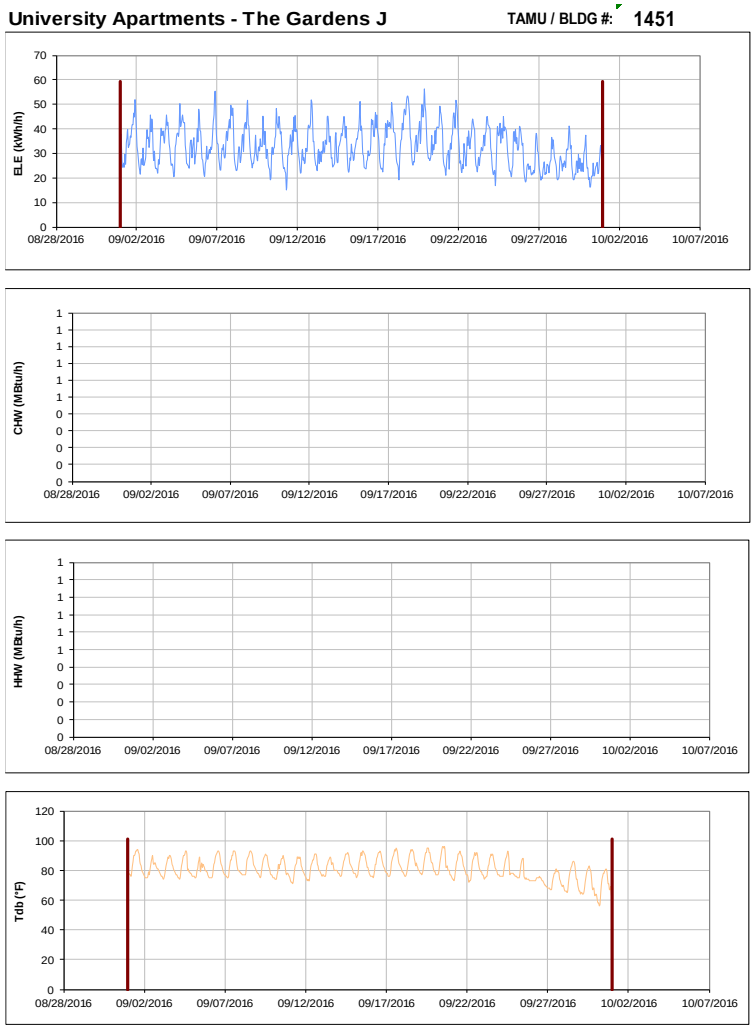


Figure III-137 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens J during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

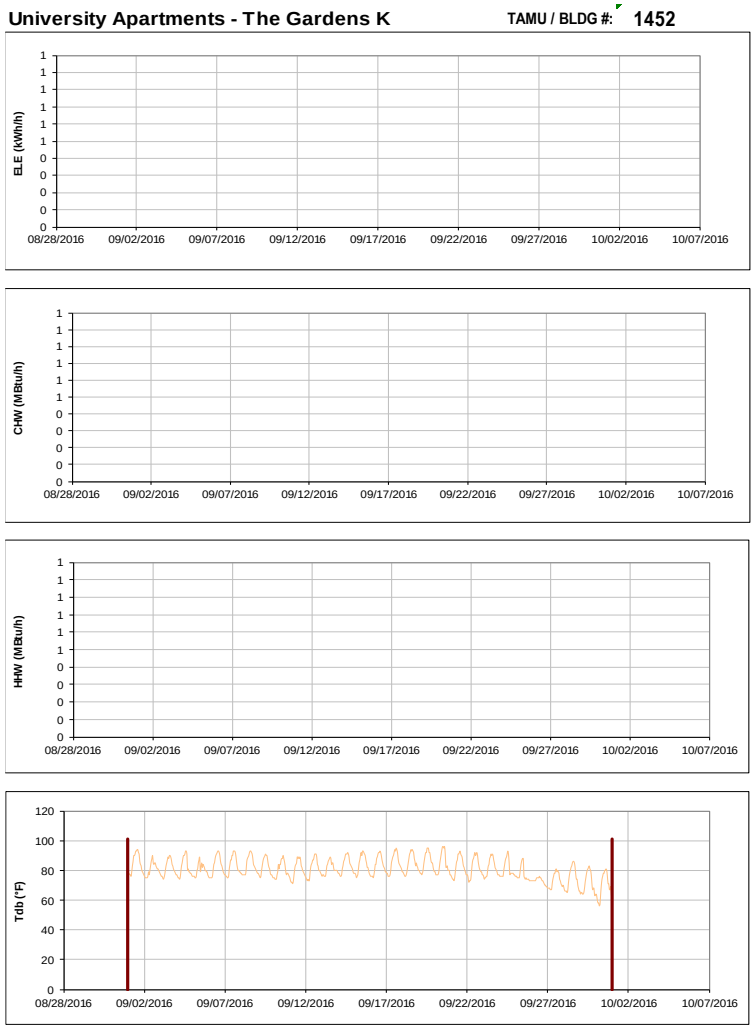


Figure III-138 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens K during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

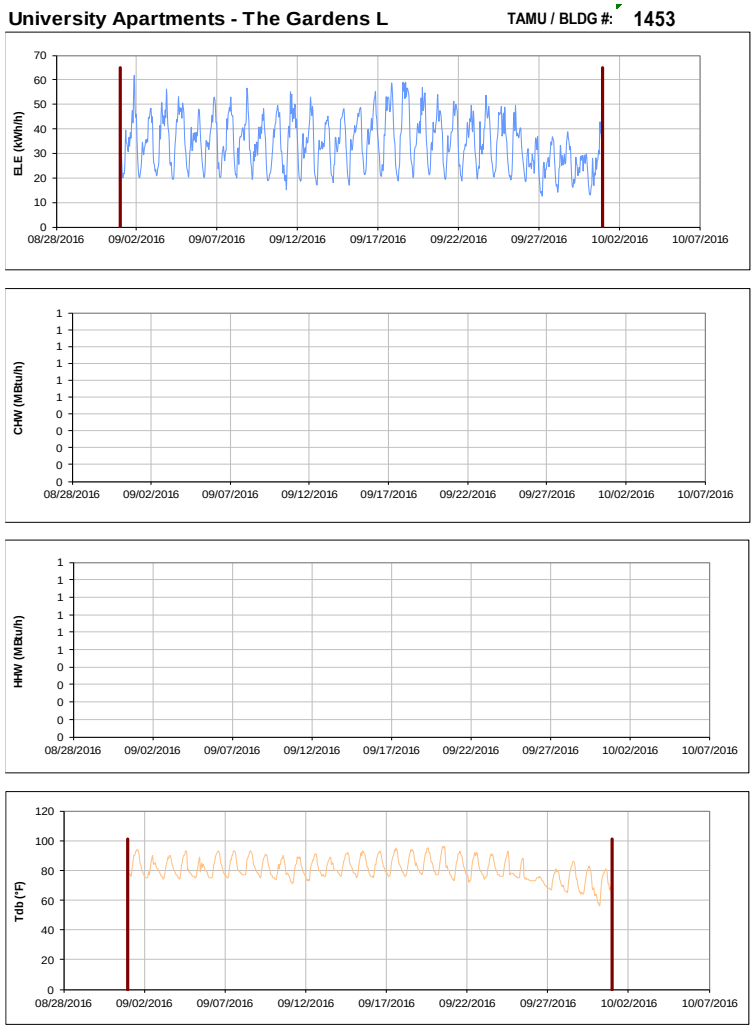


Figure III-139 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens L during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

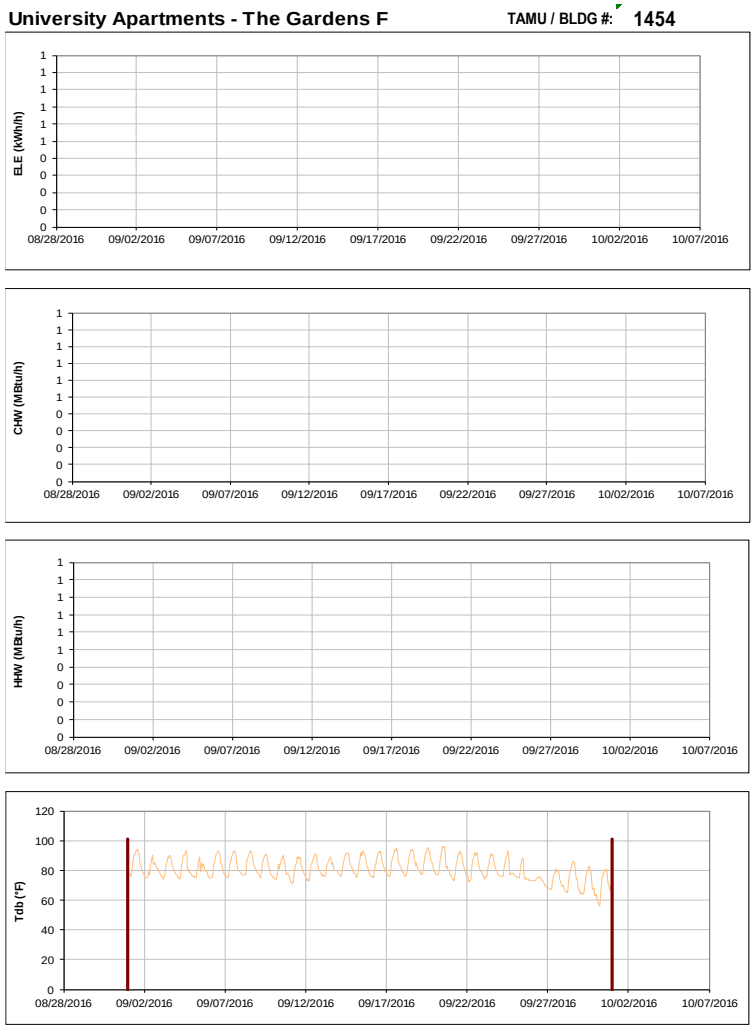


Figure III-140 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens F during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

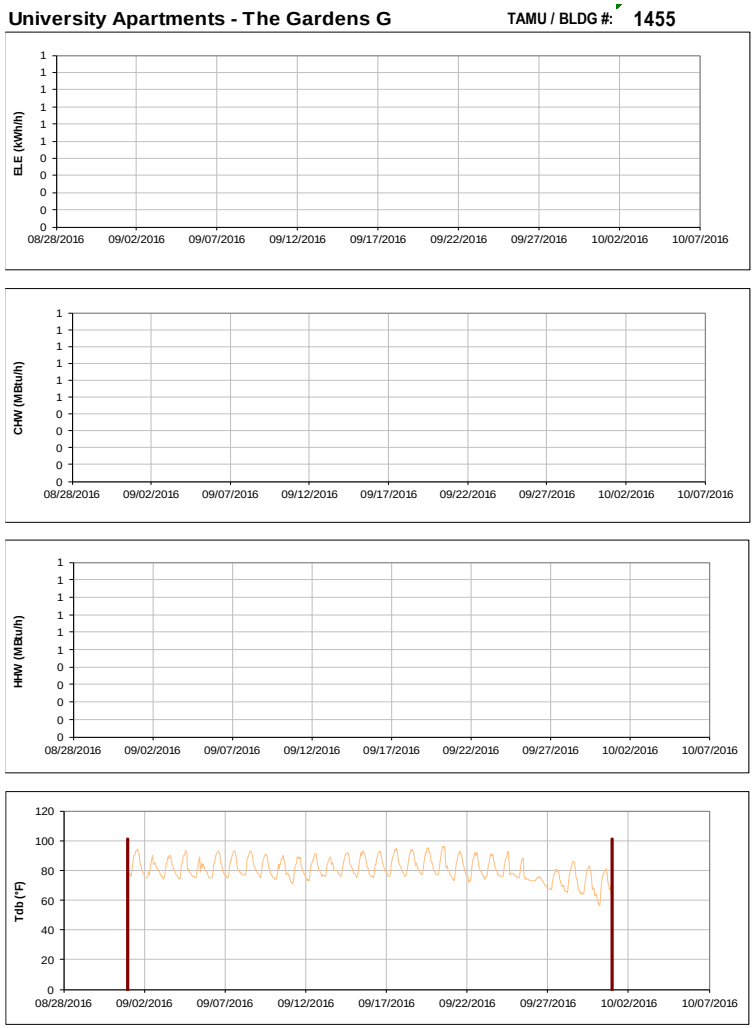


Figure III-141 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens G during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

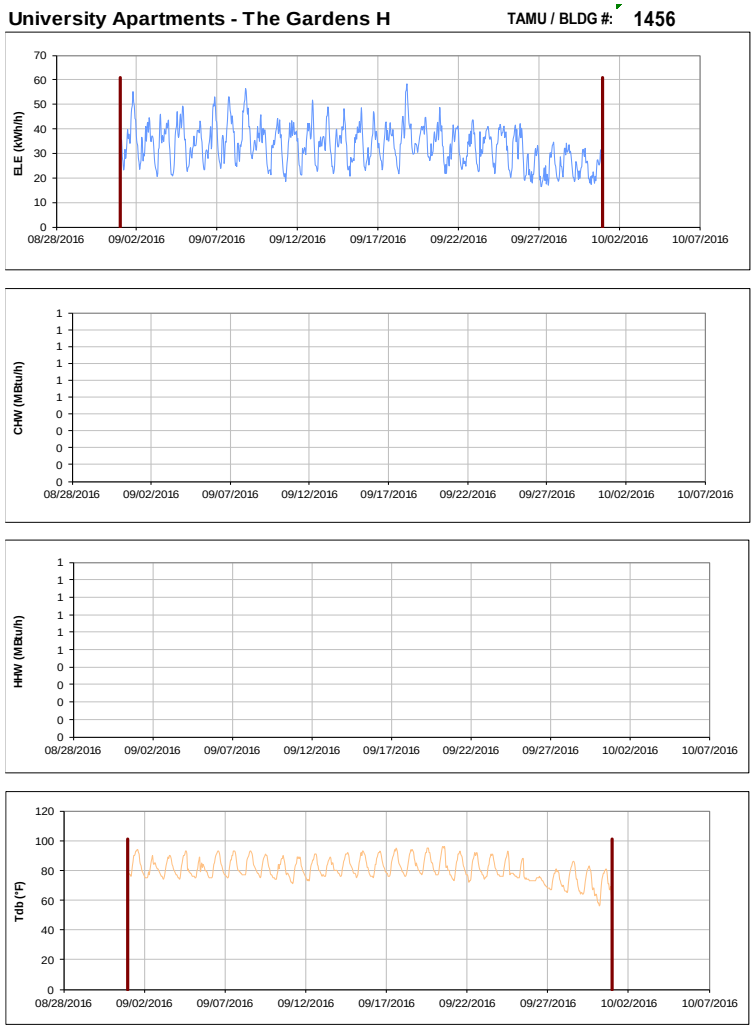


Figure III-142 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens H during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

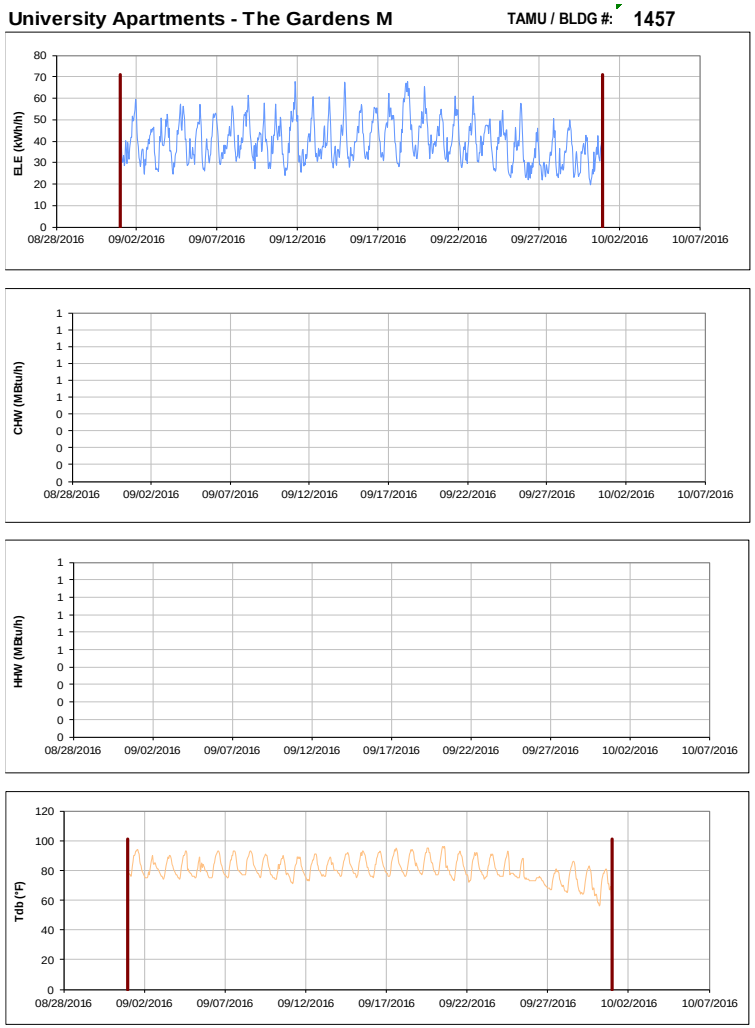


Figure III-143 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens M during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

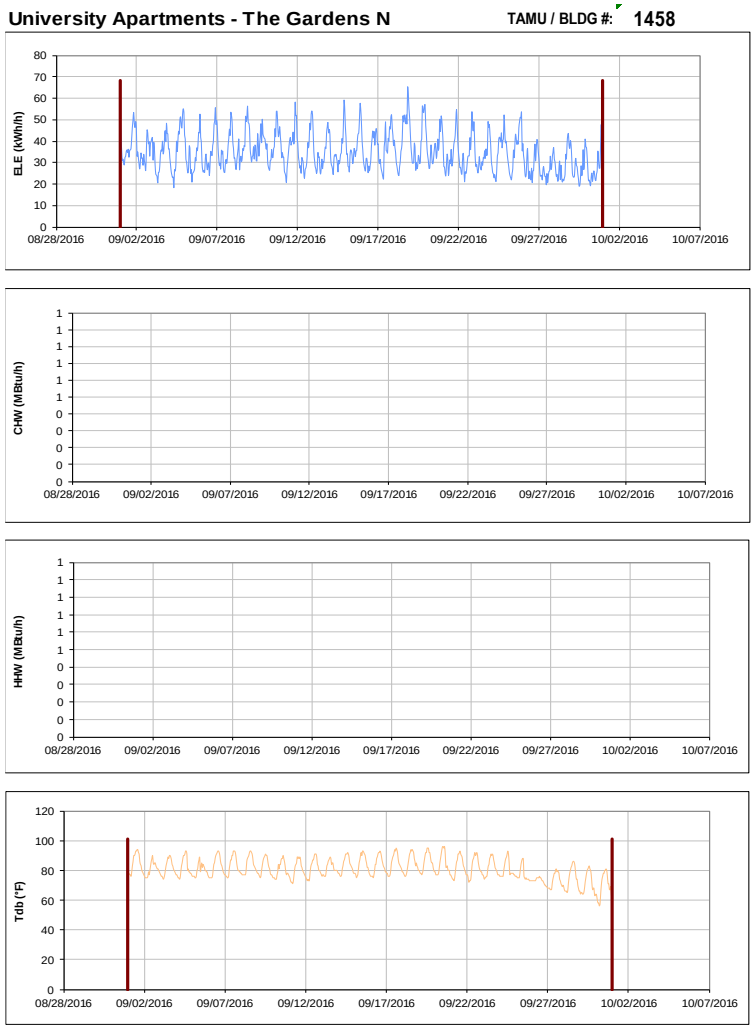


Figure III-144 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens N during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

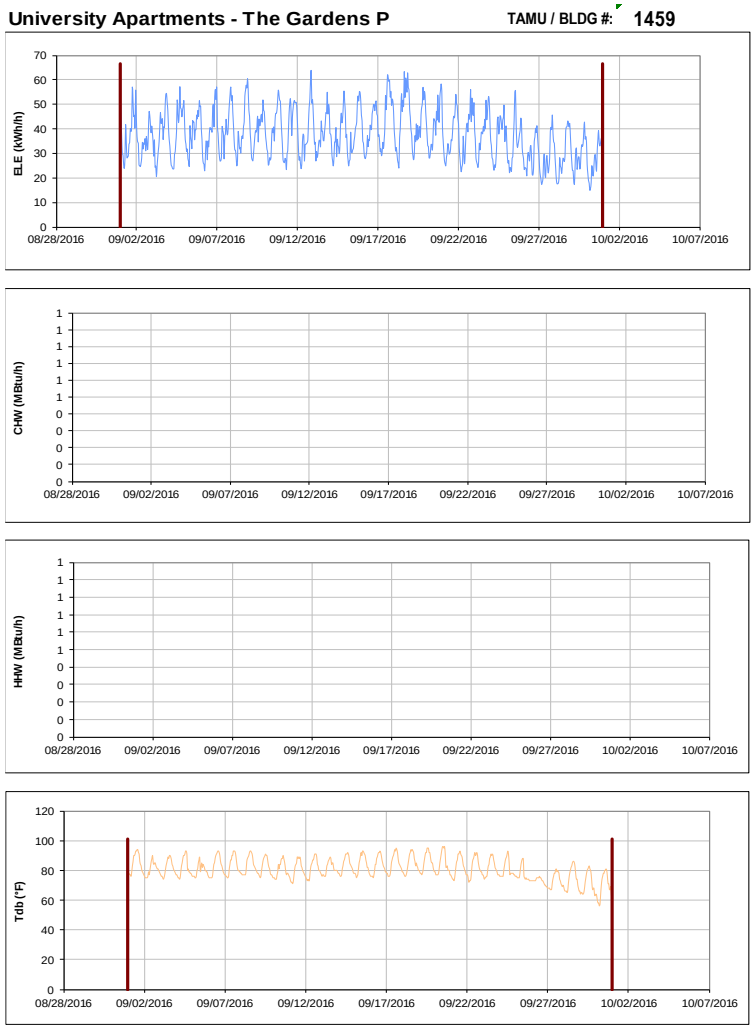


Figure III-145 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens P during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

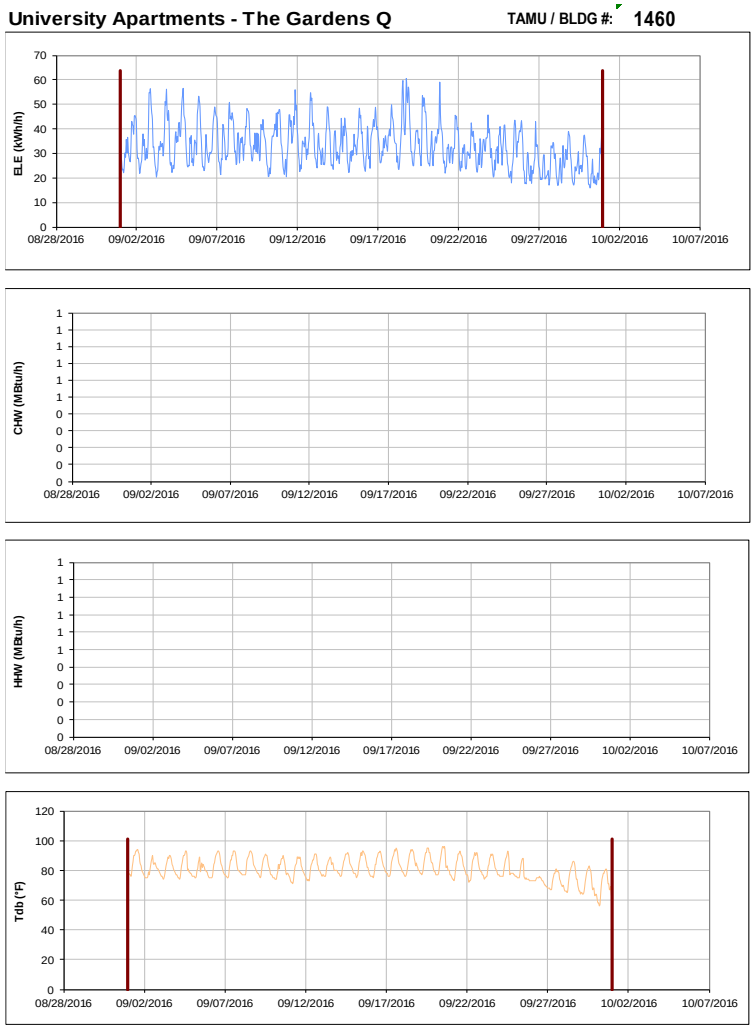


Figure III-146 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for University Apartments - The Gardens Q during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

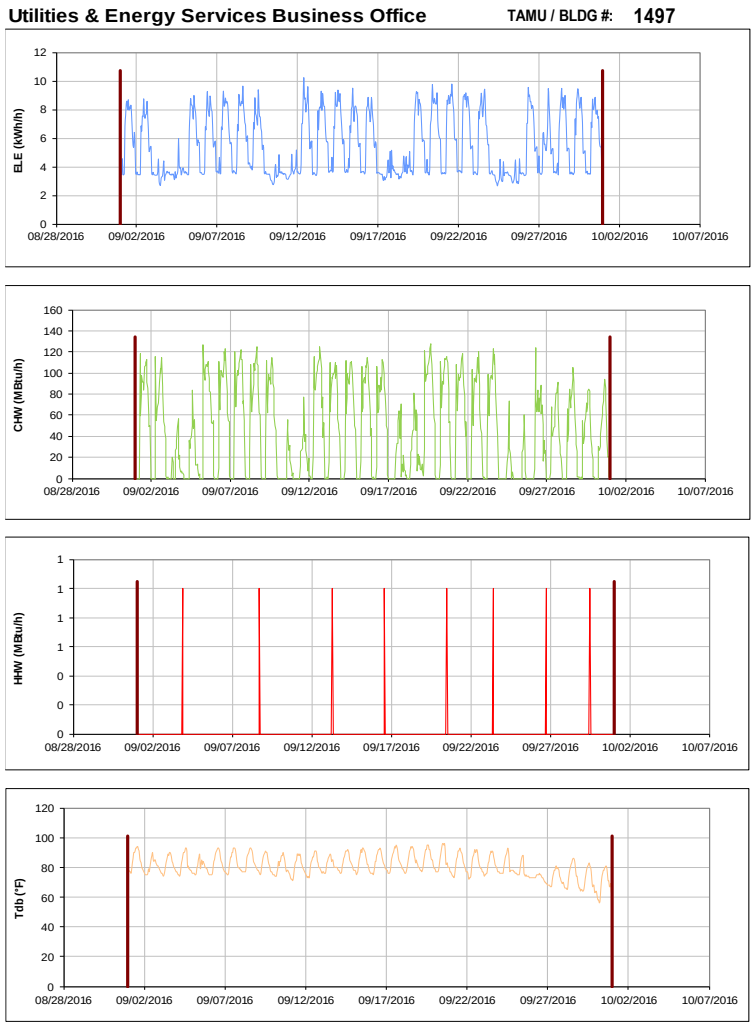


Figure III-147 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Utilities & Energy Services Business Office during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

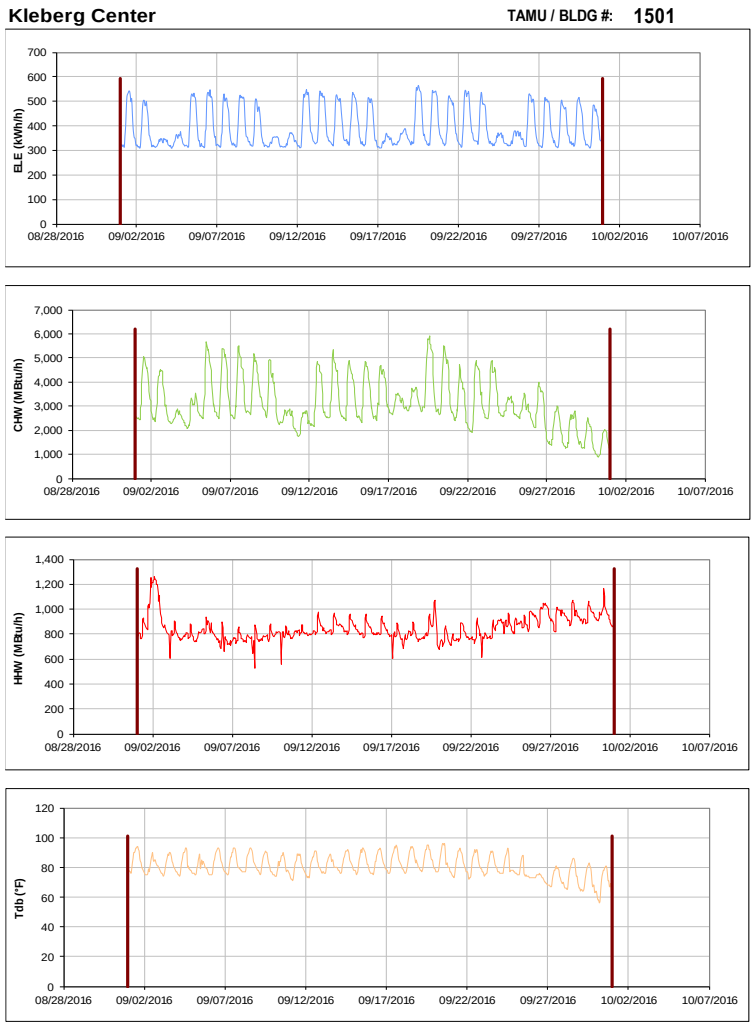


Figure III-148 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Kleberg Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

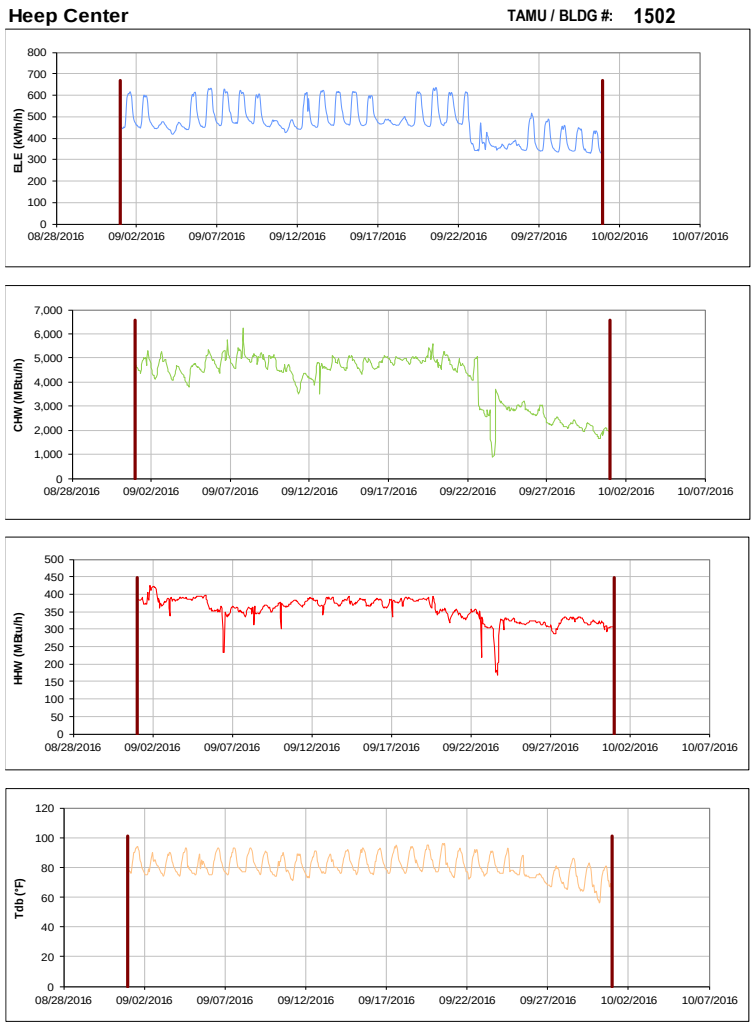


Figure III-149 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Heep Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

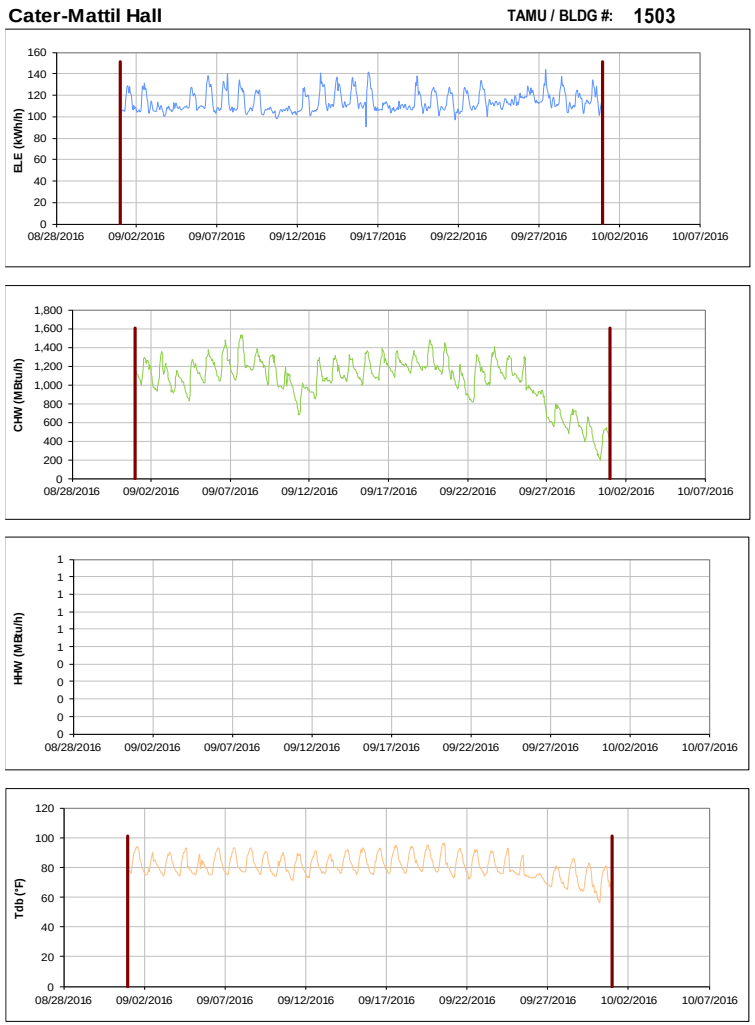


Figure III-150 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cater-Mattil Hall during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

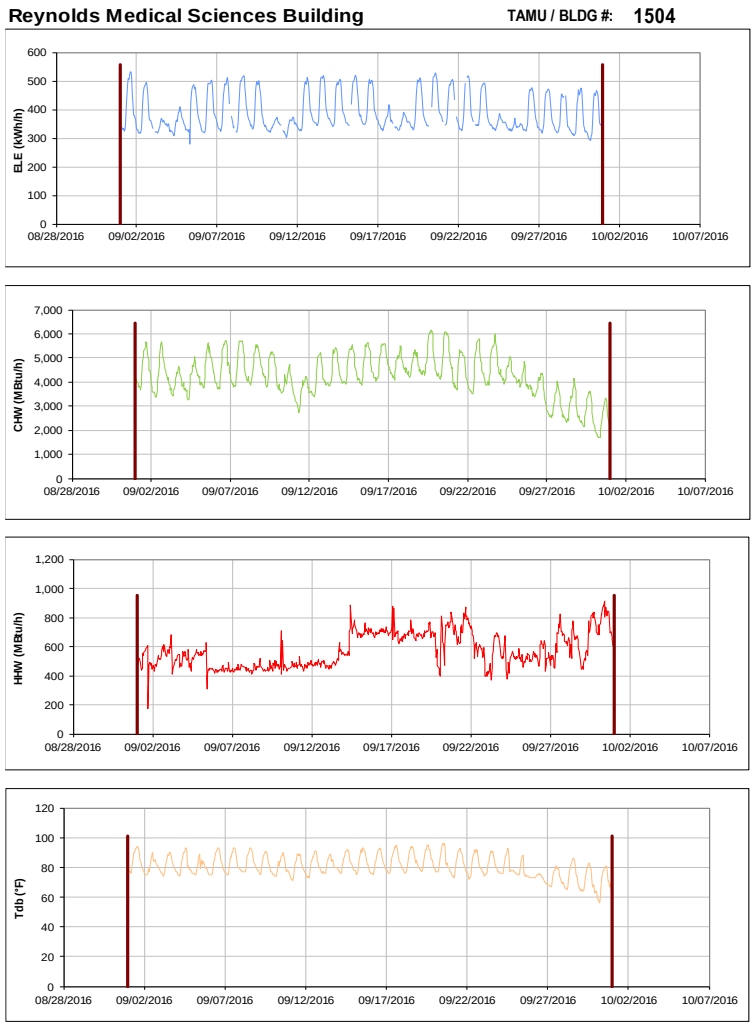


Figure III-151 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reynolds Medical Sciences Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

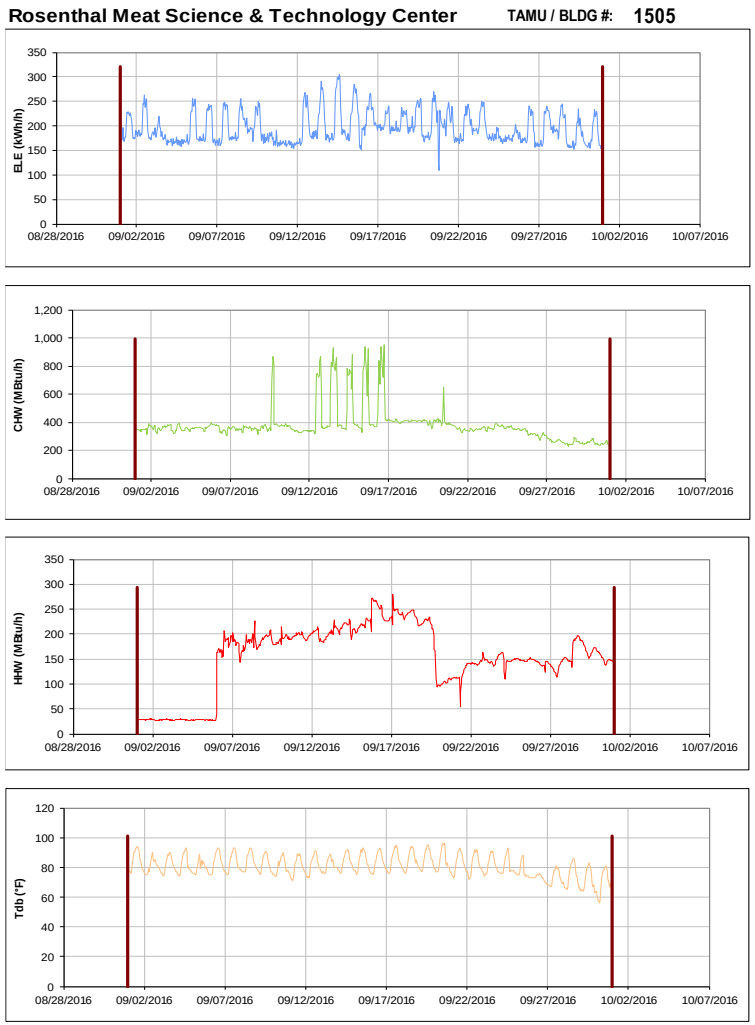


Figure III-152 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Rosenthal Meat Science & Technology Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

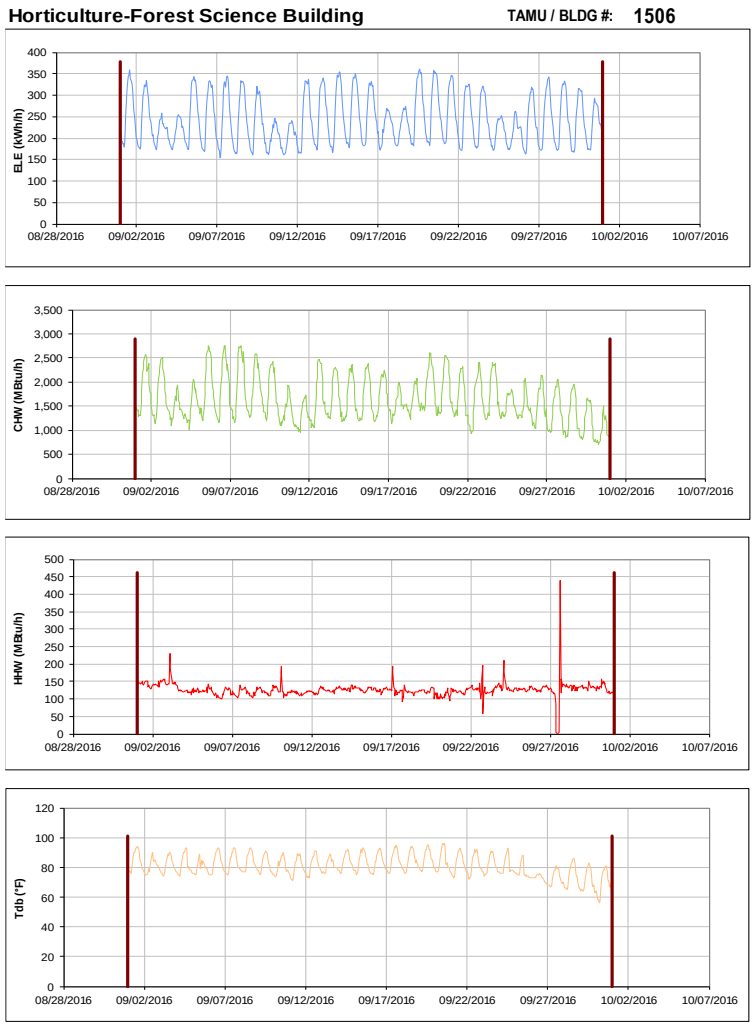


Figure III-153 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Horticulture-Forest Science Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

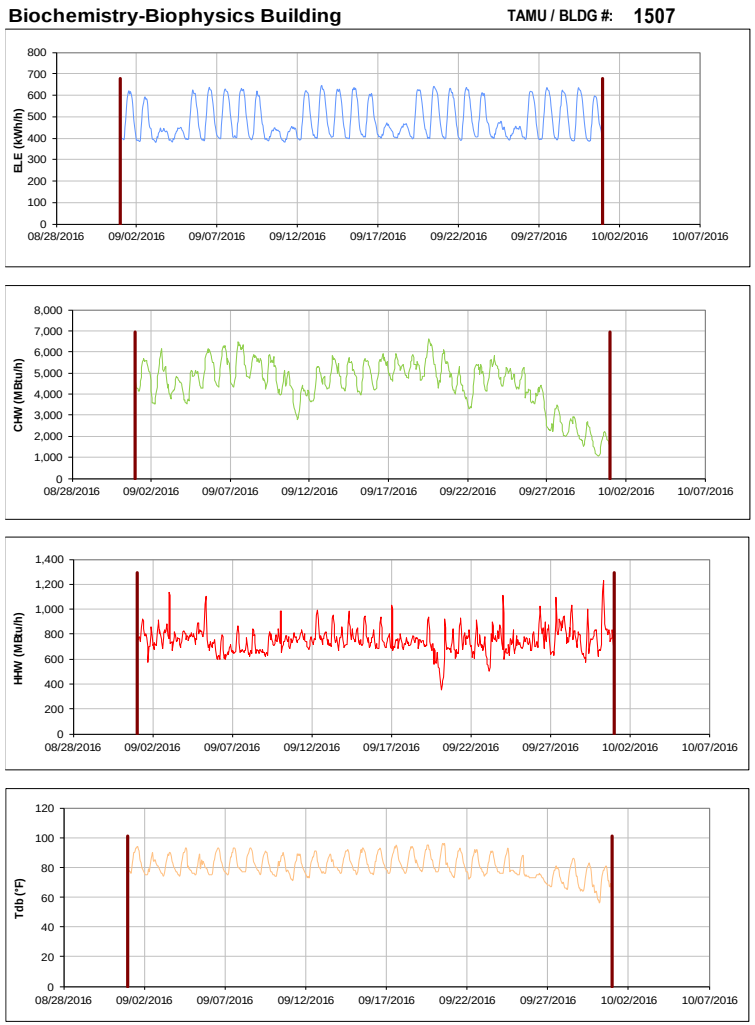


Figure III-154 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Biochemistry-Biophysics Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

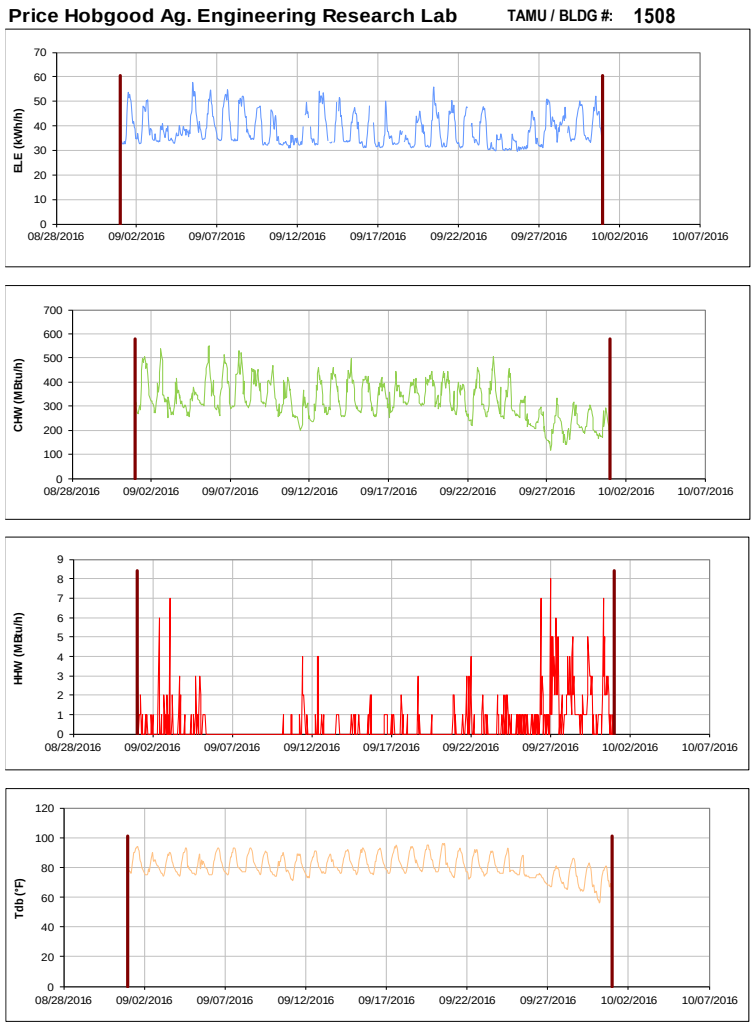


Figure III-155 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Price Hobgood Ag. Engineering Research Lab during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

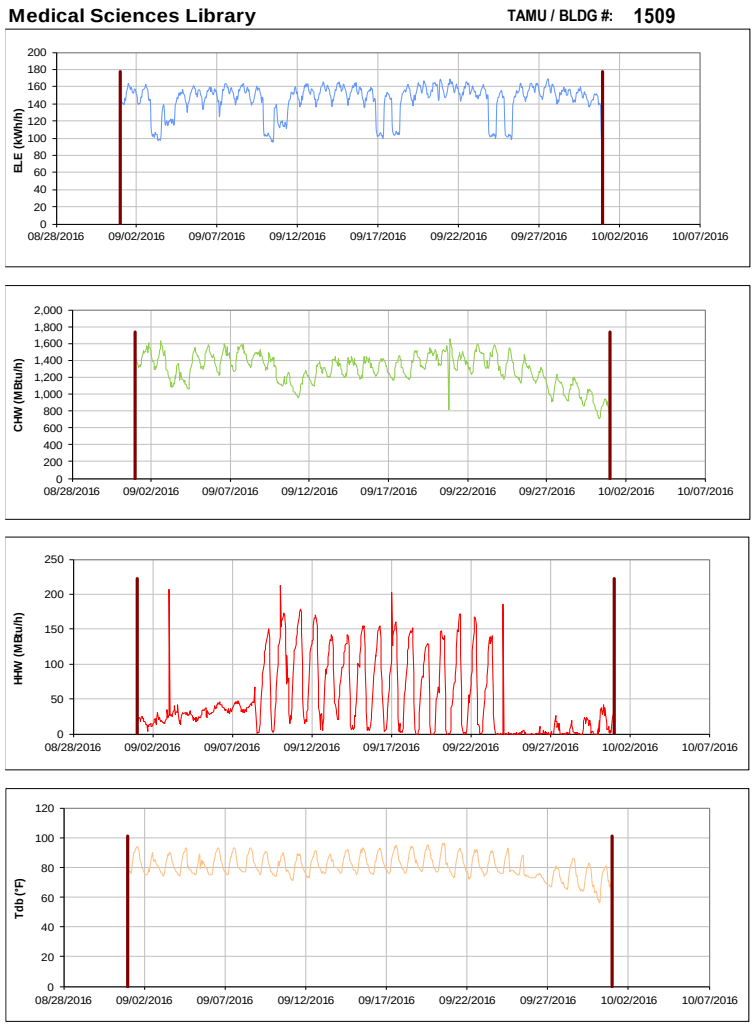


Figure III-156 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Medical Sciences Library during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

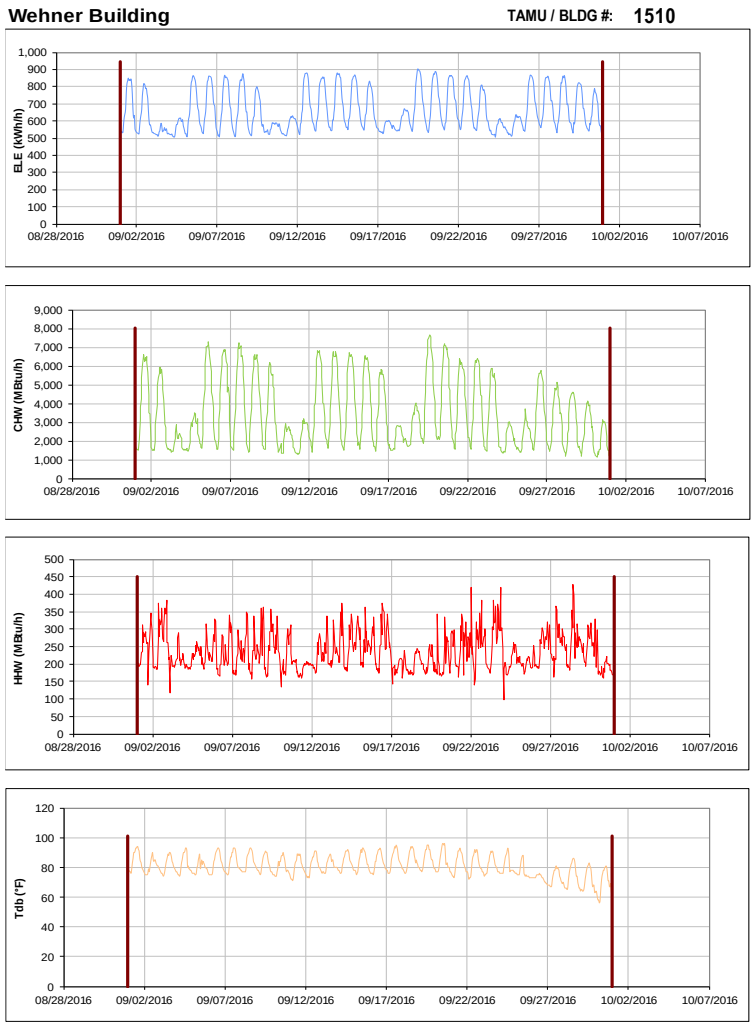


Figure III-157 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Wehner Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

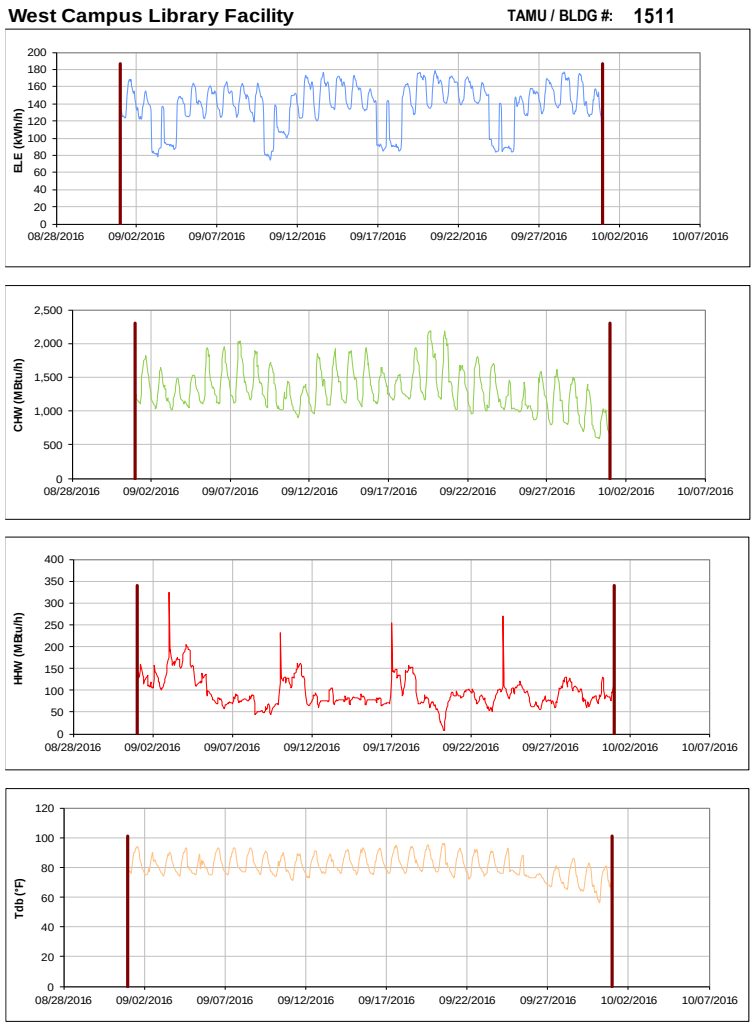


Figure III-158 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Library Facility during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

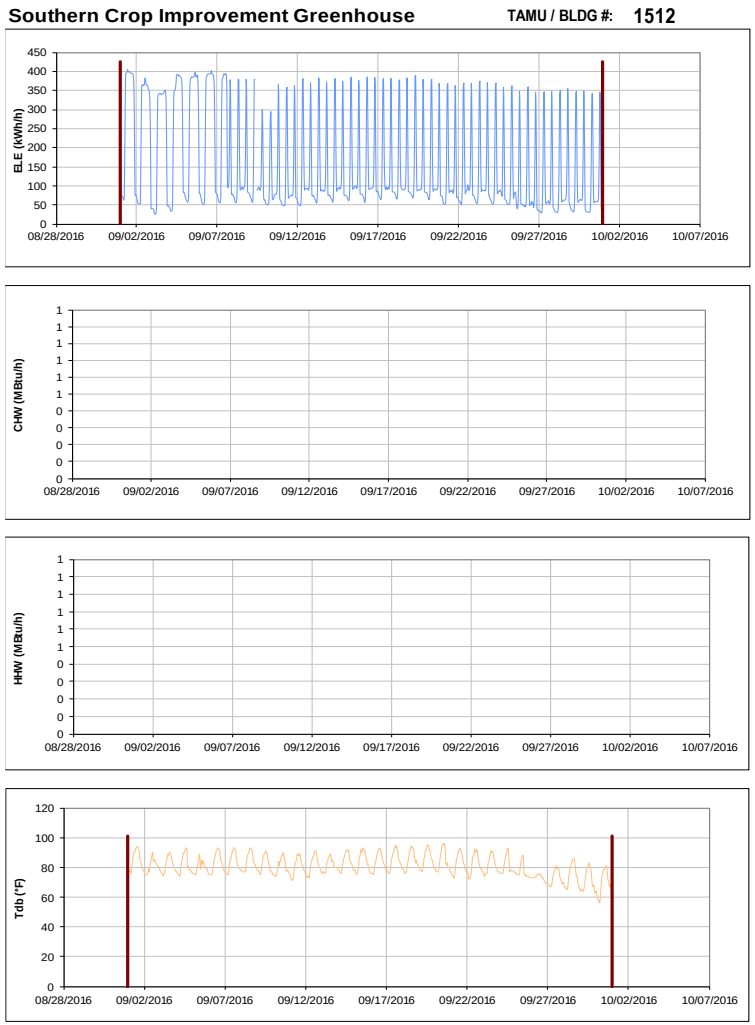


Figure III-159 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Southern Crop Improvement Greenhouse during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

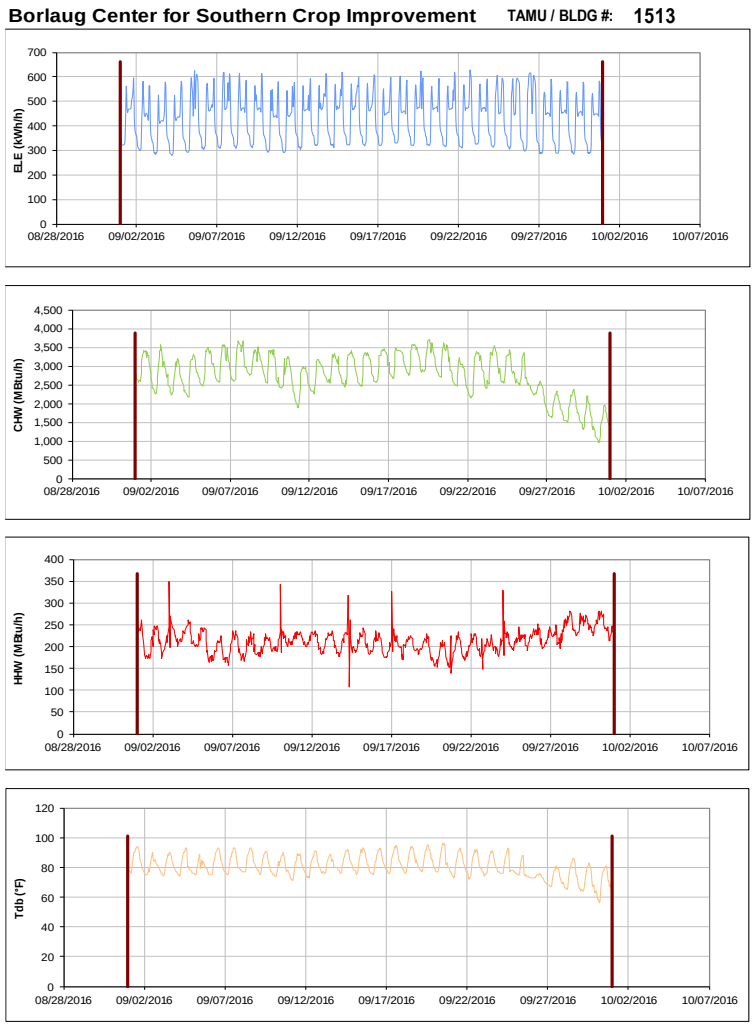


Figure III-160 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Borlaug Center for Southern Crop Improvement during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

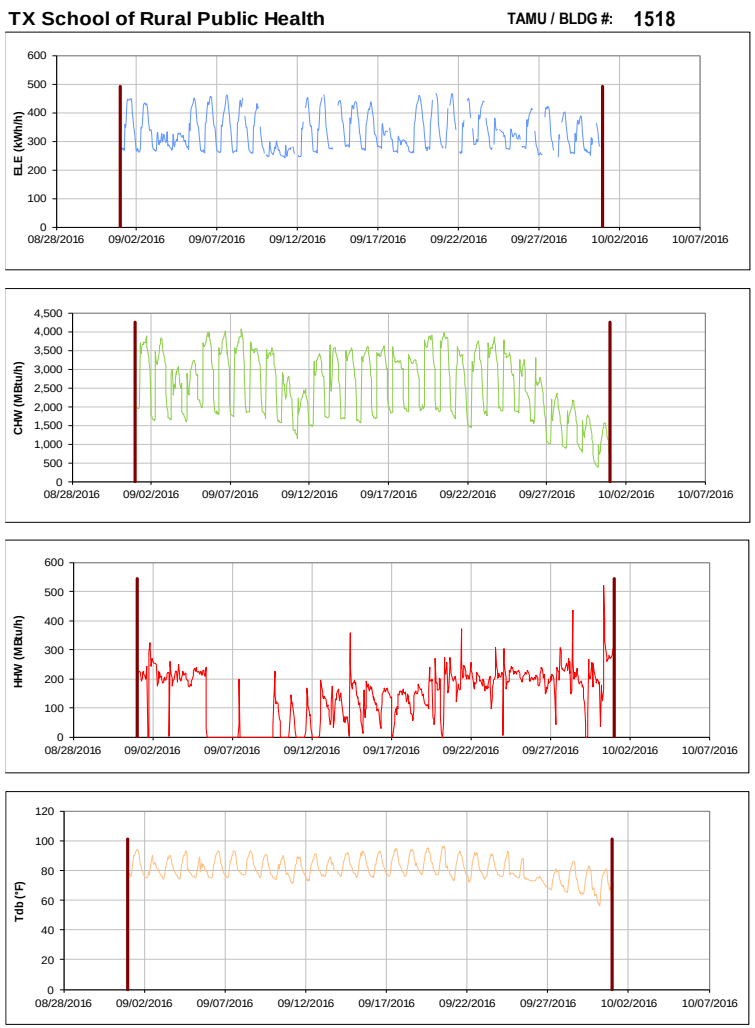


Figure III-161 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TX School of Rural Public Health during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

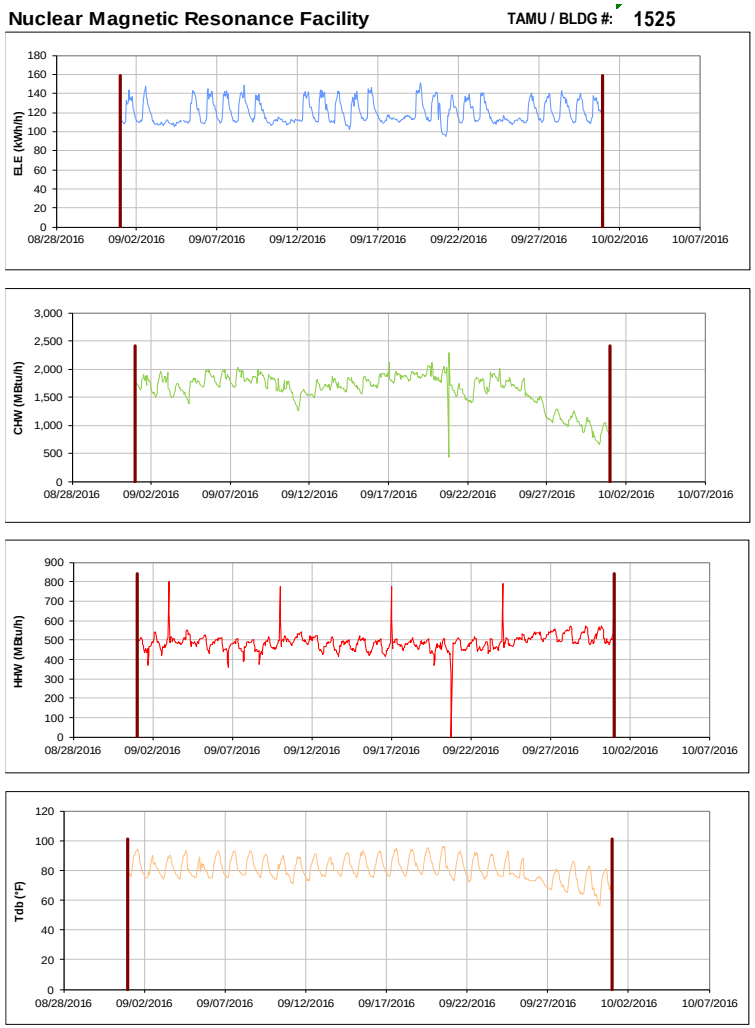


Figure III-162 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Nuclear Magnetic Resonance Facility during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

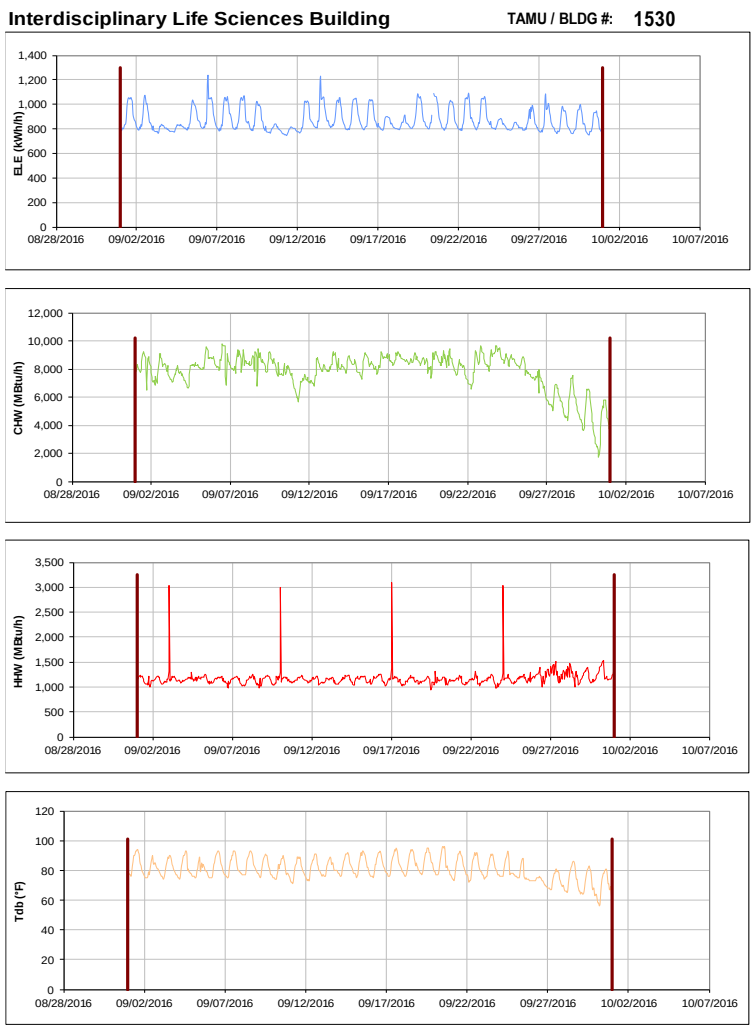


Figure III-163 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Interdisciplinary Life Sciences Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

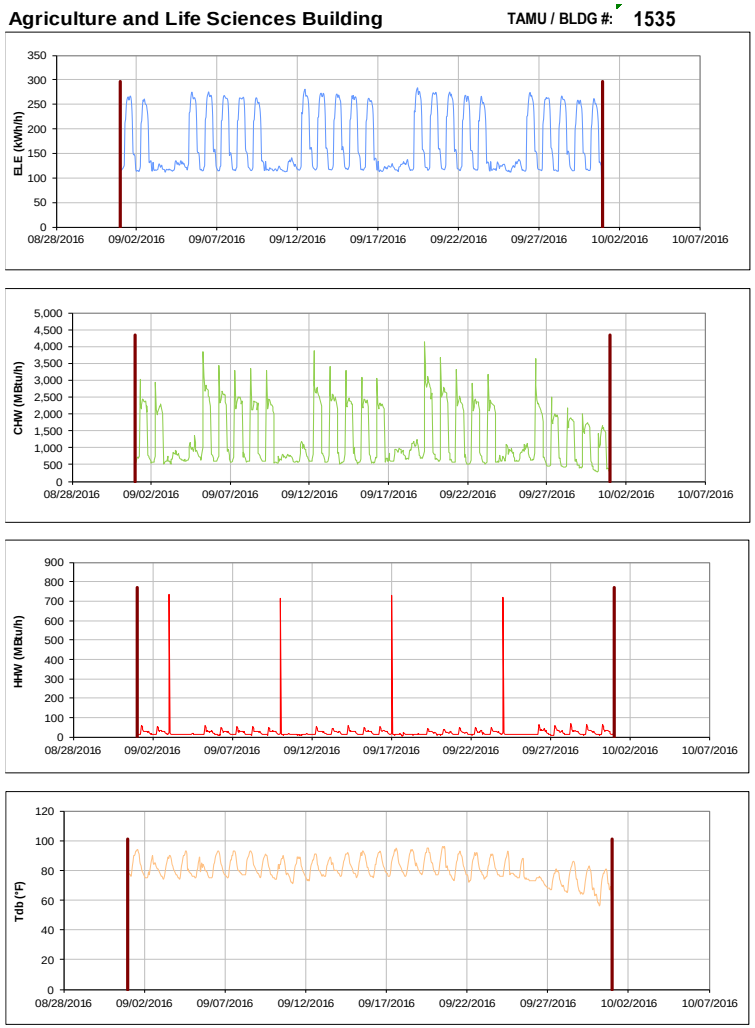


Figure III-164 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture and Life Sciences Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

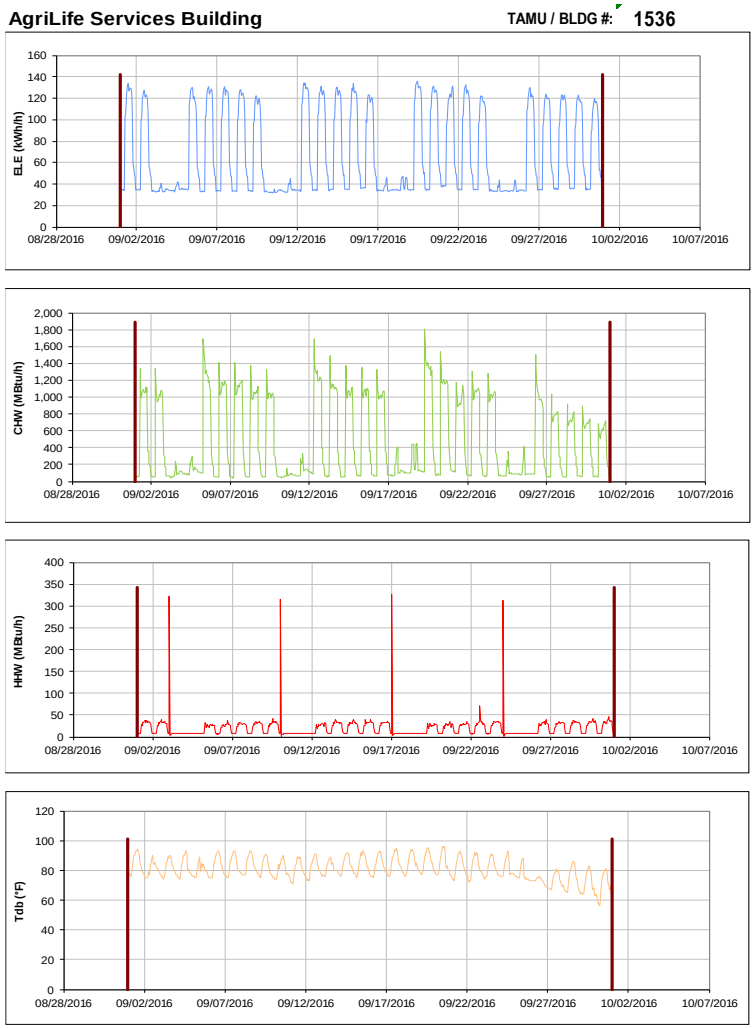


Figure III-165 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for AgriLife Services Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

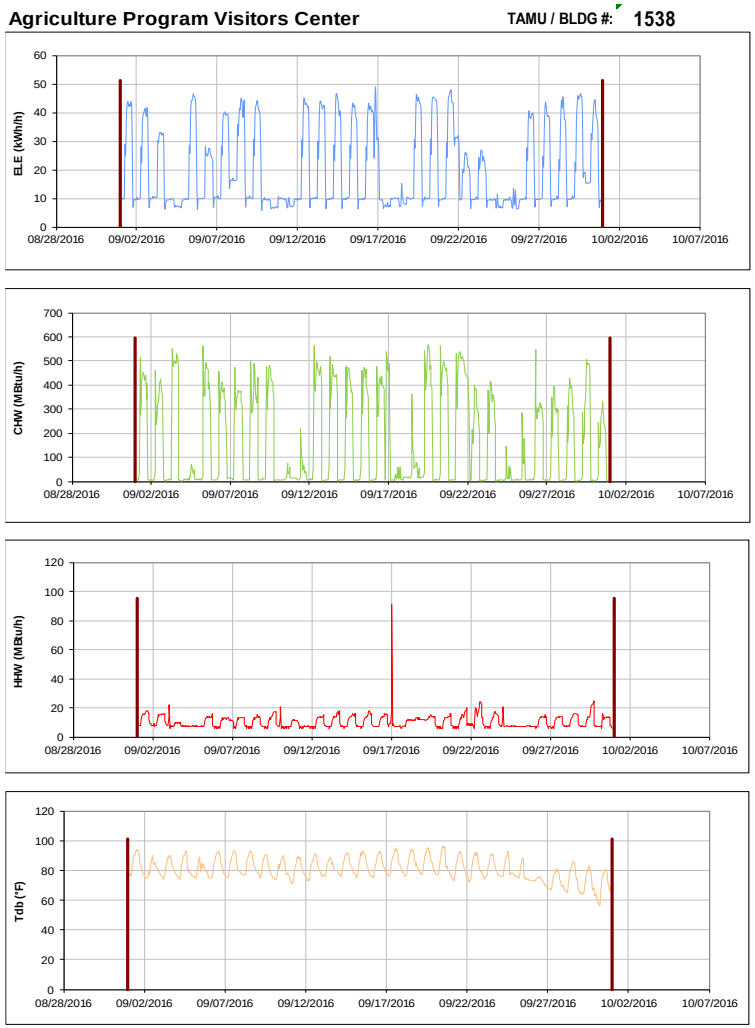


Figure III-166 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Agriculture Program Visitors Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

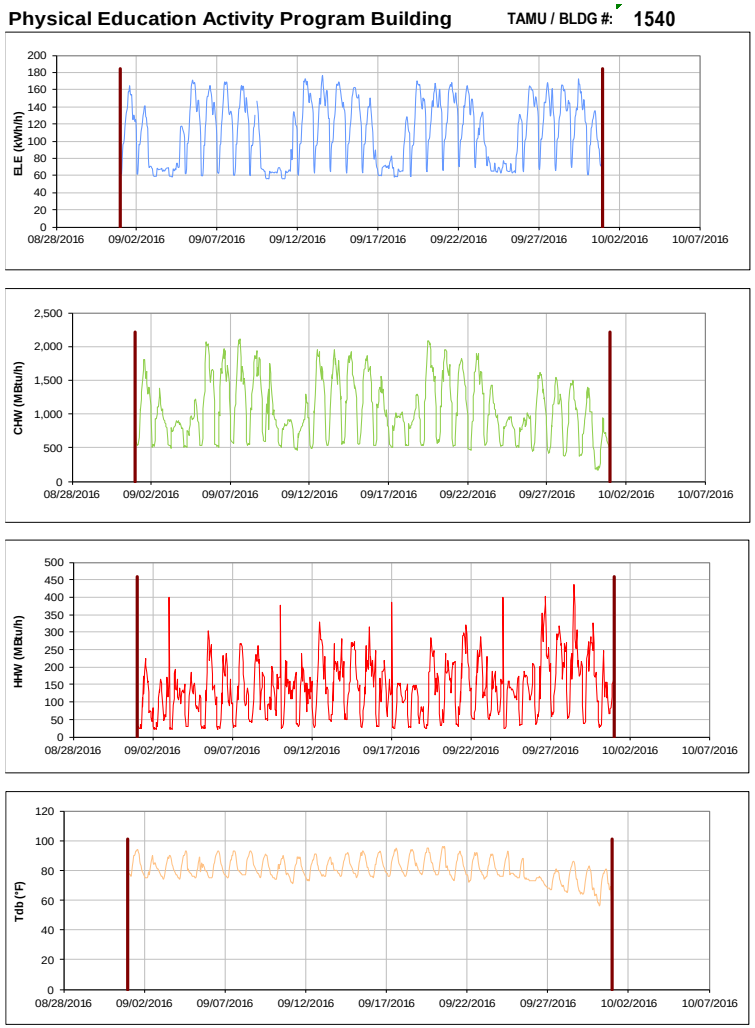


Figure III-167 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Physical Education Activity Program Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

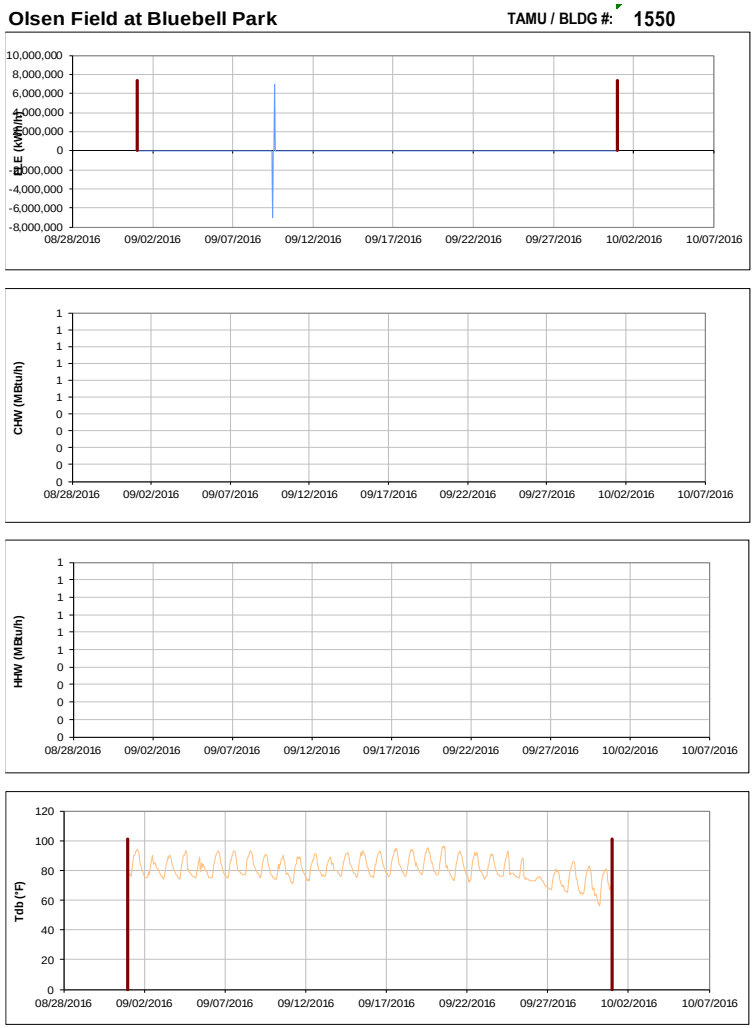


Figure III-168 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Olsen Field at Bluebell Park during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

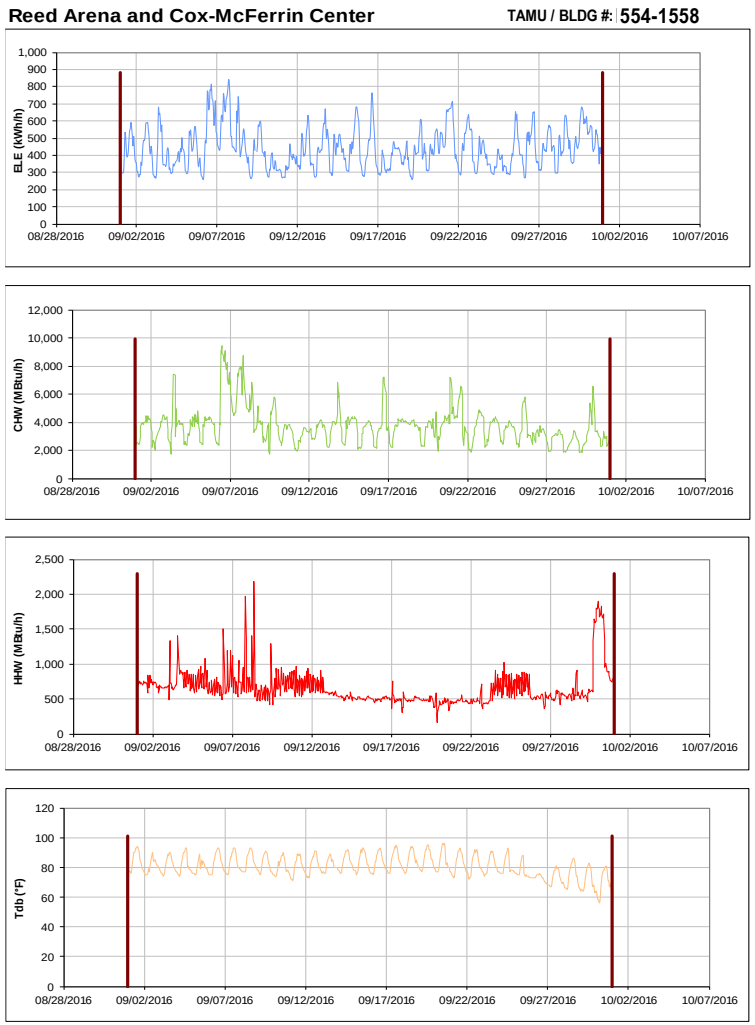


Figure III-169 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Reed Arena and Cox-McFerrin Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

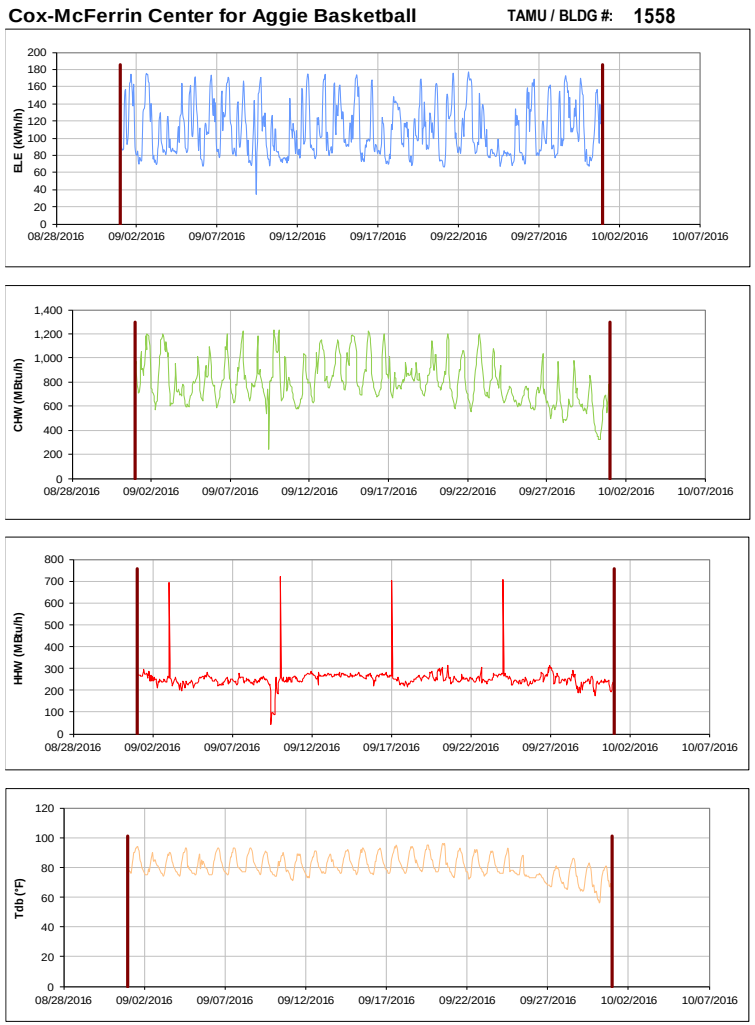


Figure III-170 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Cox-McFerrin Center for Aggie Basketball during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

Figure III-171 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for West Campus Parking Garage during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

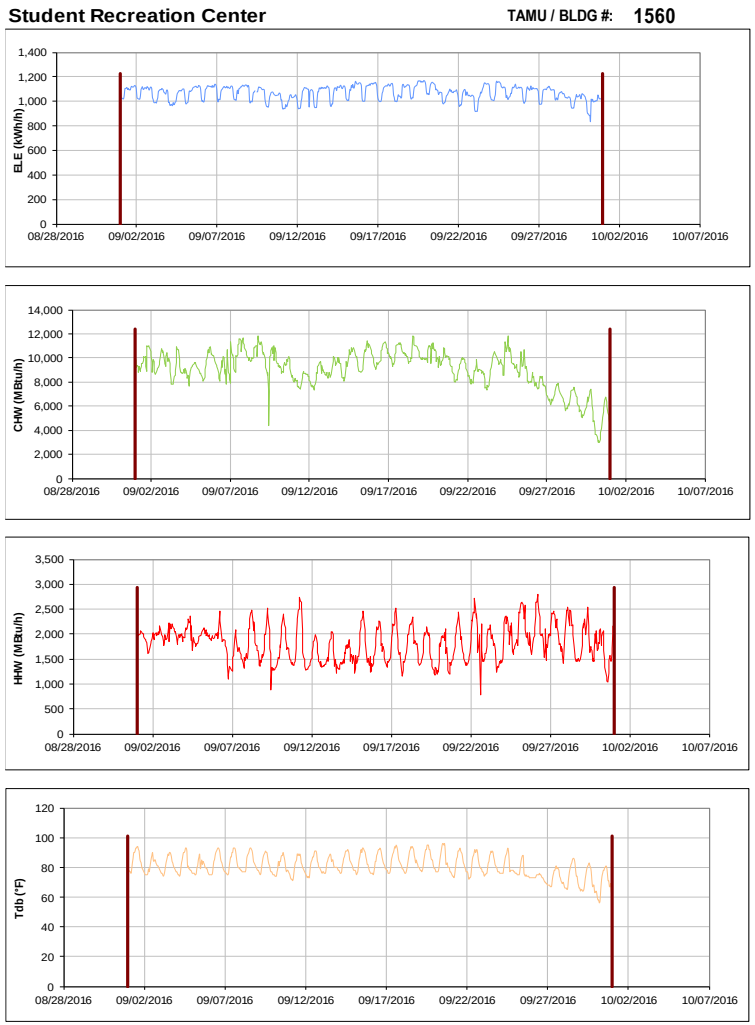


Figure III-172 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Student Recreation Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

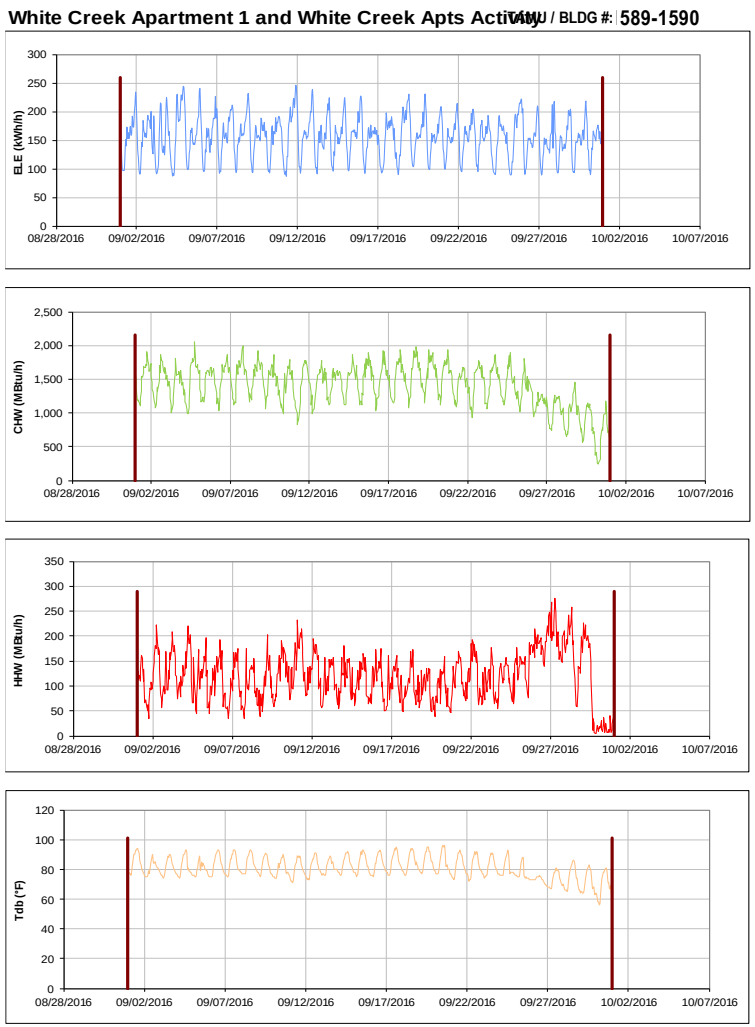


Figure III-173 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 1 and White Creek Apts Activity Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station

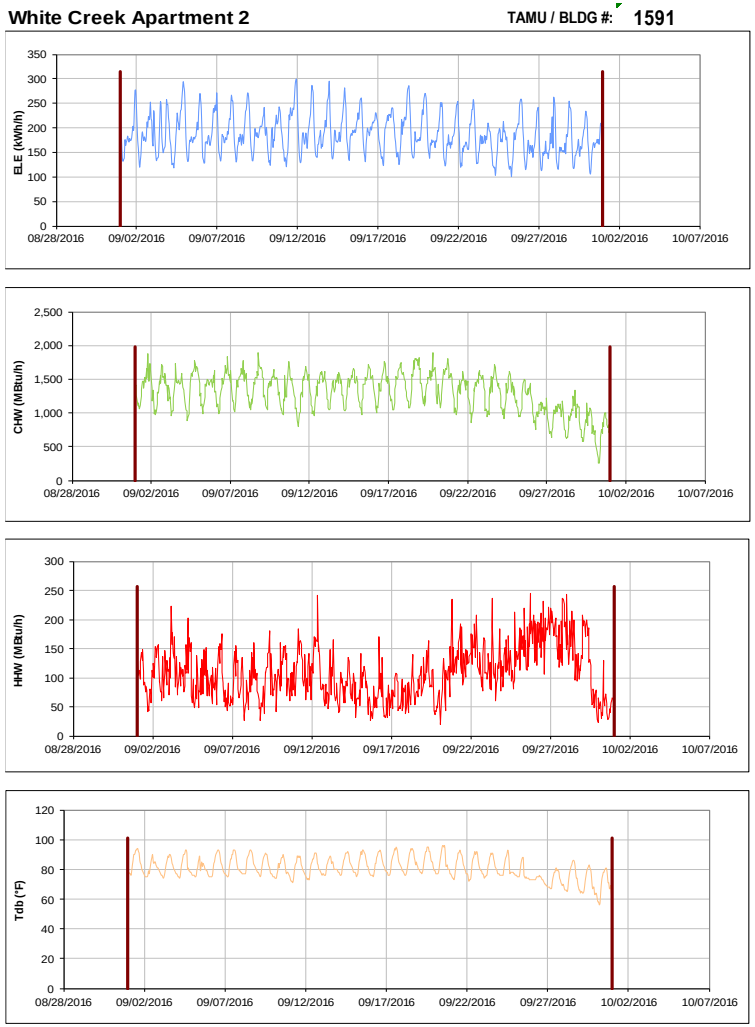


Figure III-174 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 2 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

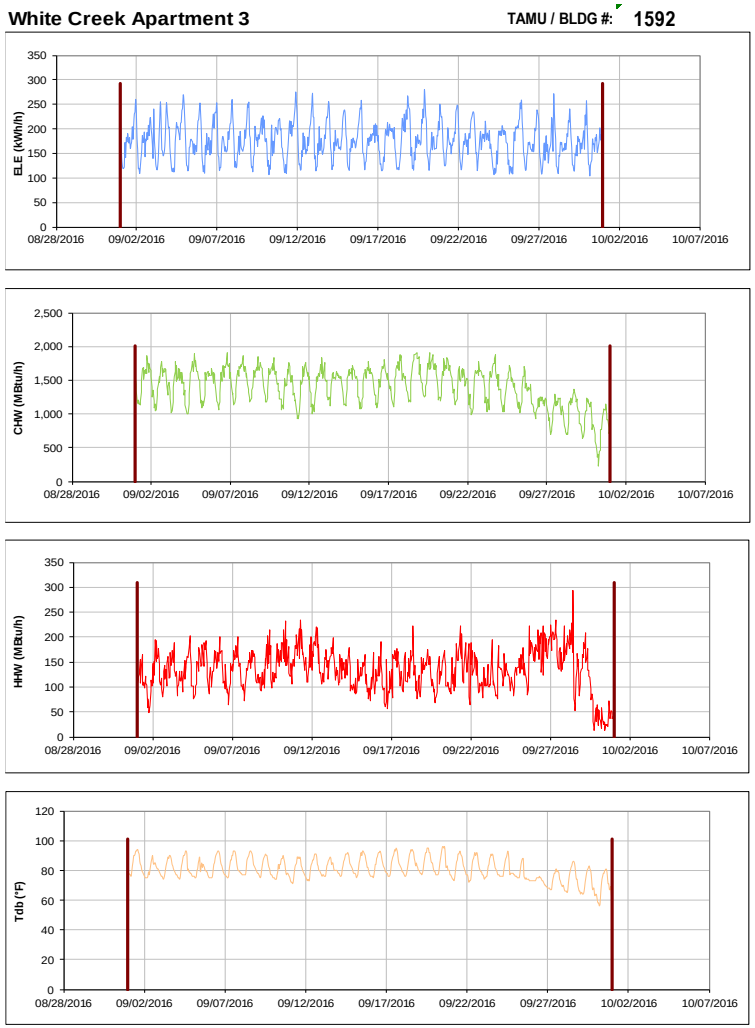


Figure III-175 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for White Creek Apartment 3 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

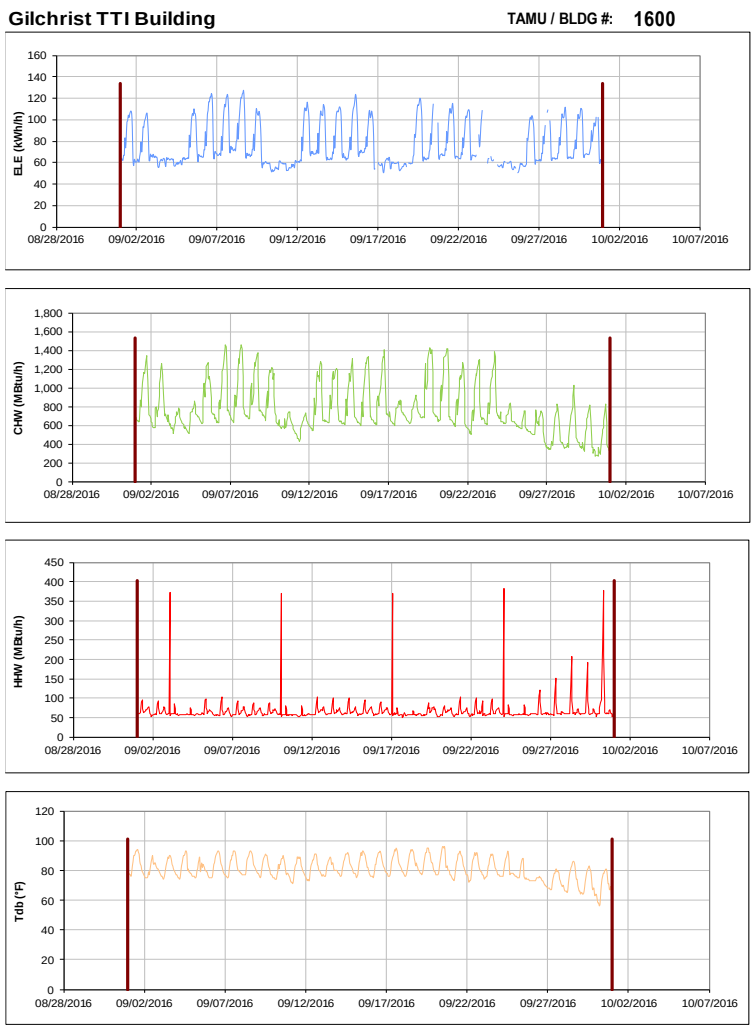


Figure III-176 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Gilchrist TTI Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

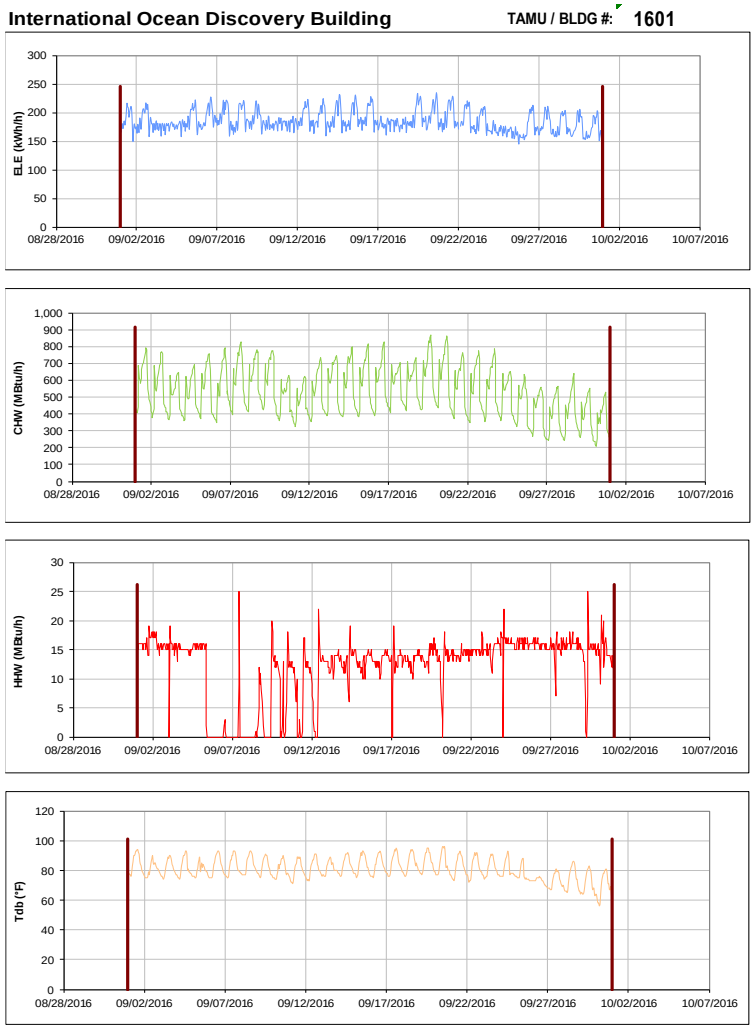


Figure III-177 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for International Ocean Discovery Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

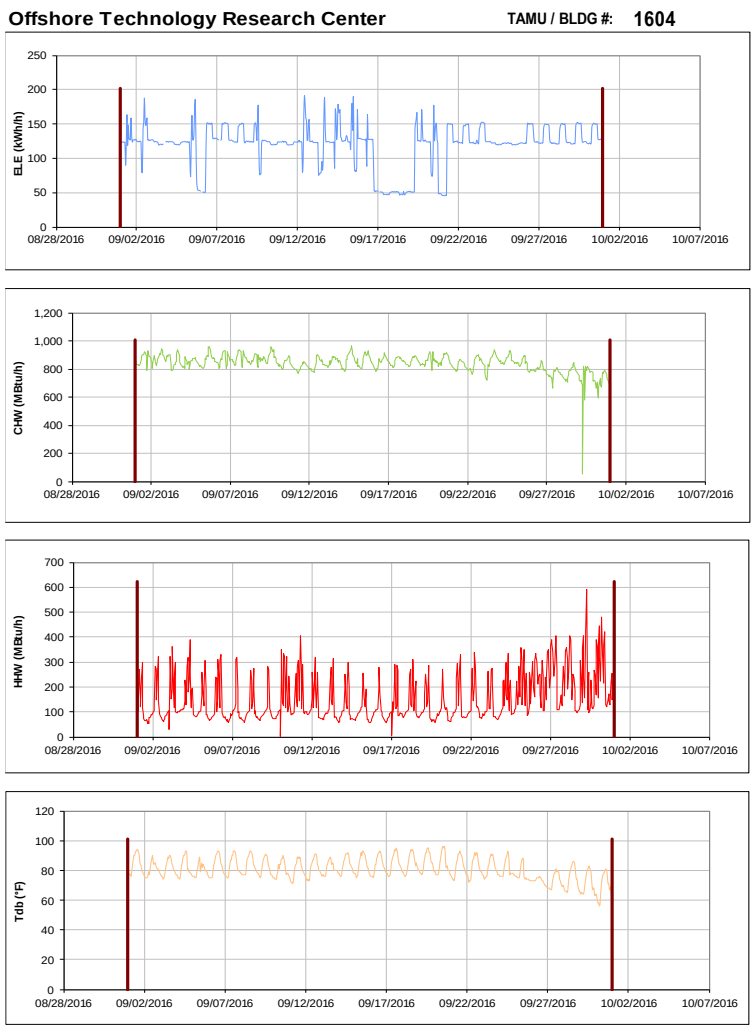


Figure III-178 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Offshore Technology Research Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

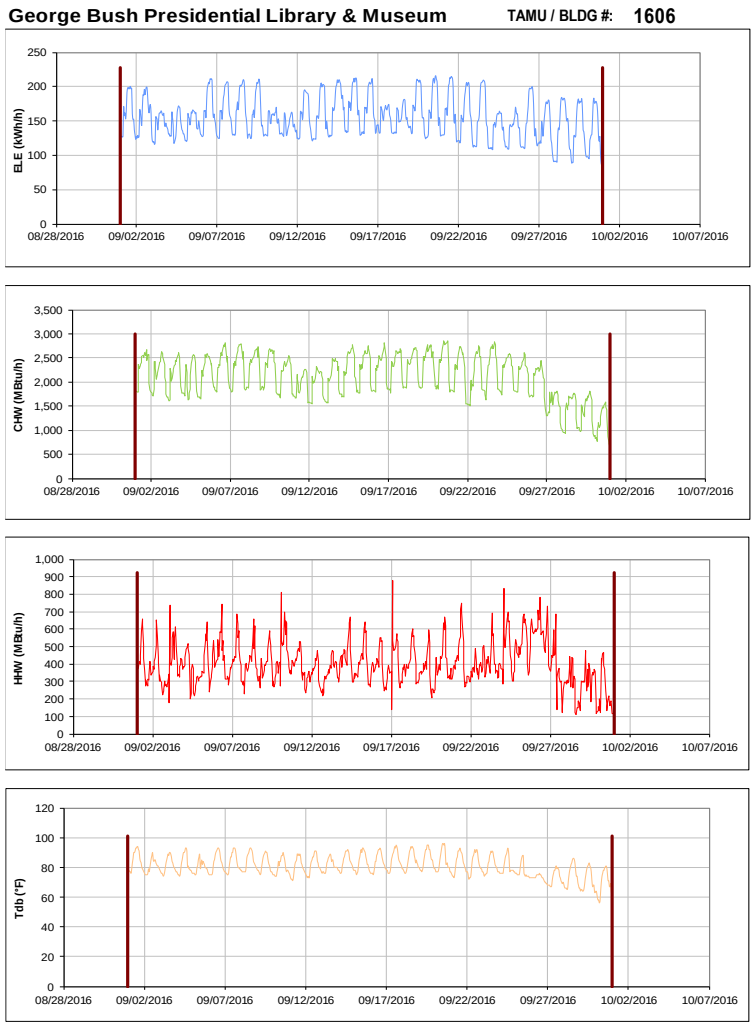


Figure III-179 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for George Bush Presidential Library & Museum during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

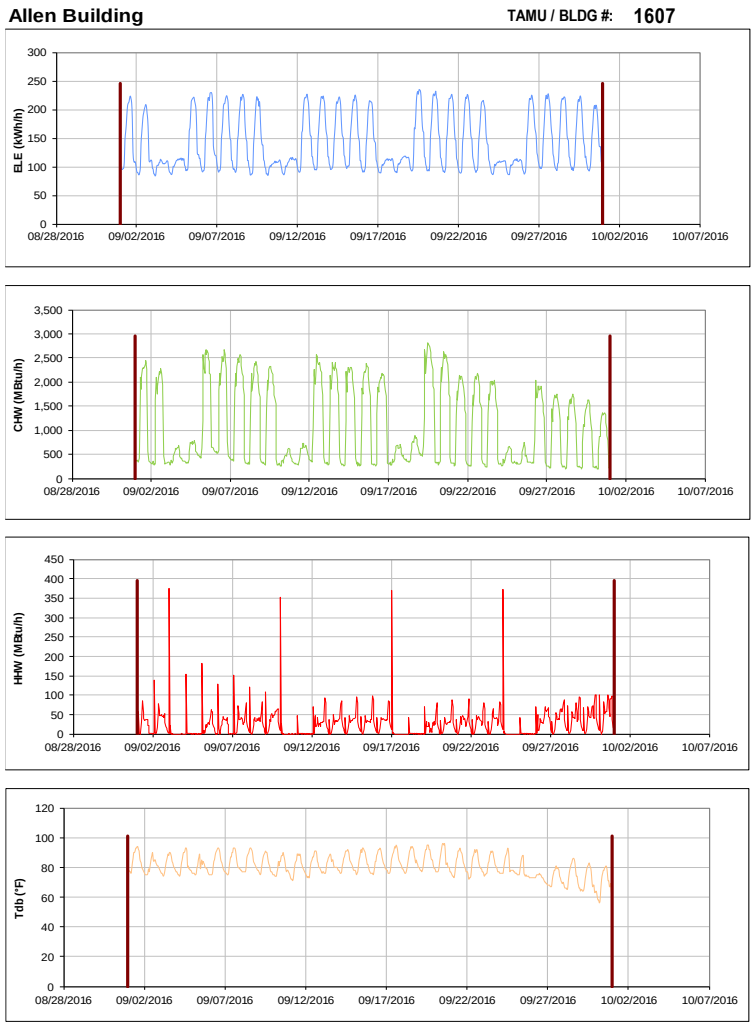


Figure III-180 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Allen Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

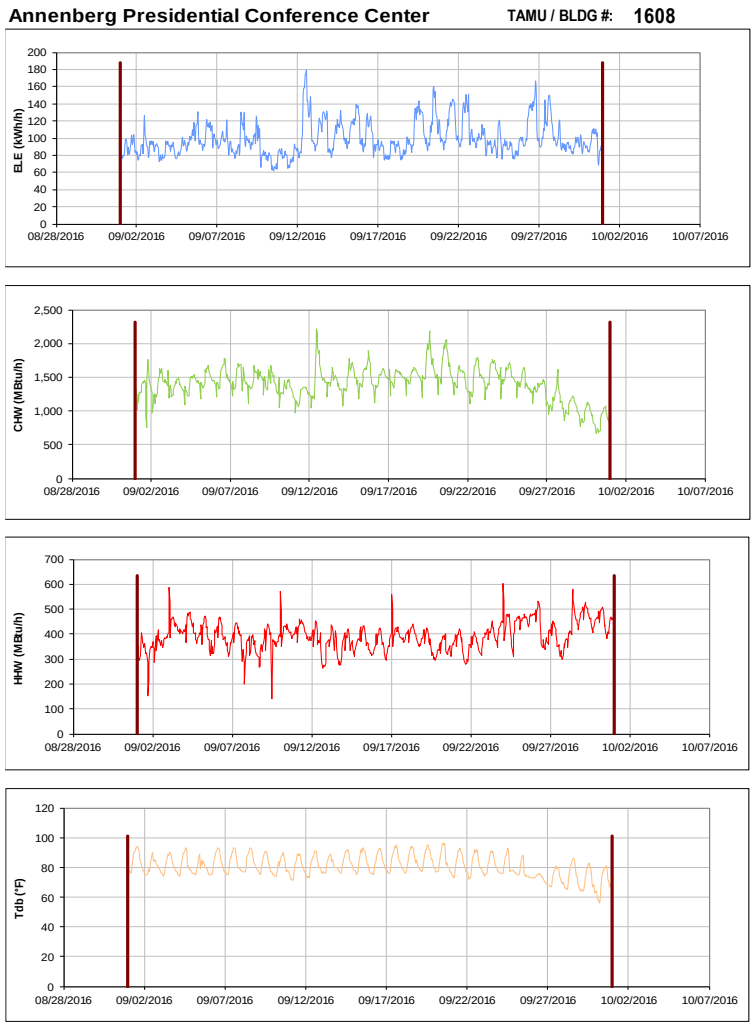


Figure III-181 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Annenberg Presidential Conference Center during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

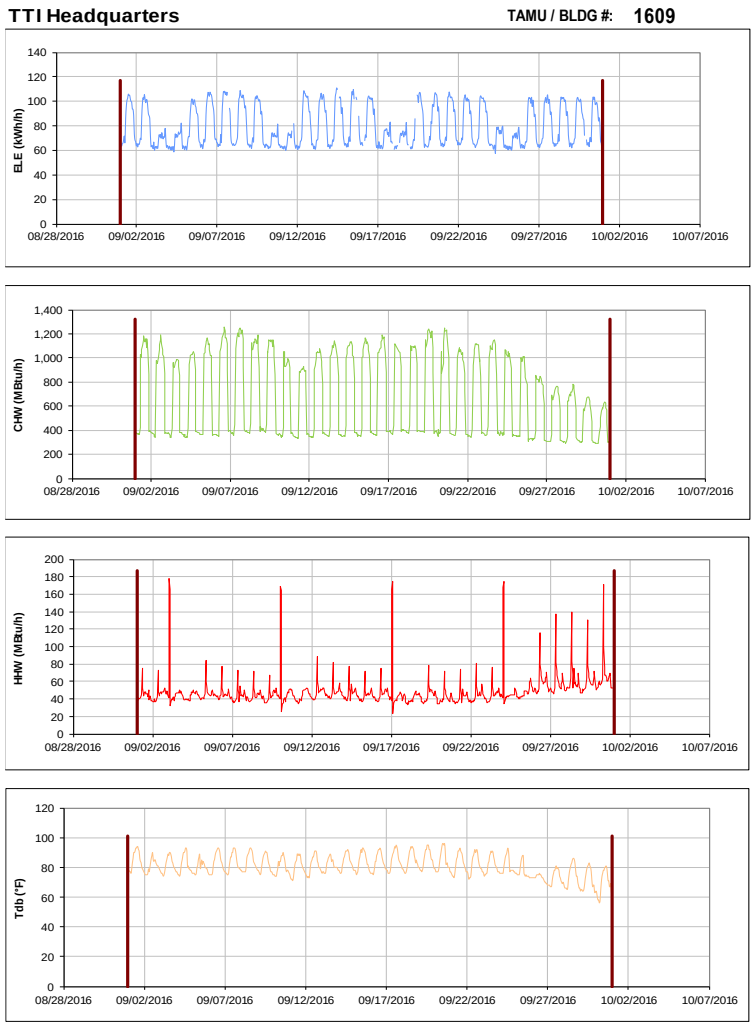


Figure III-182 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for TTI Headquarters during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

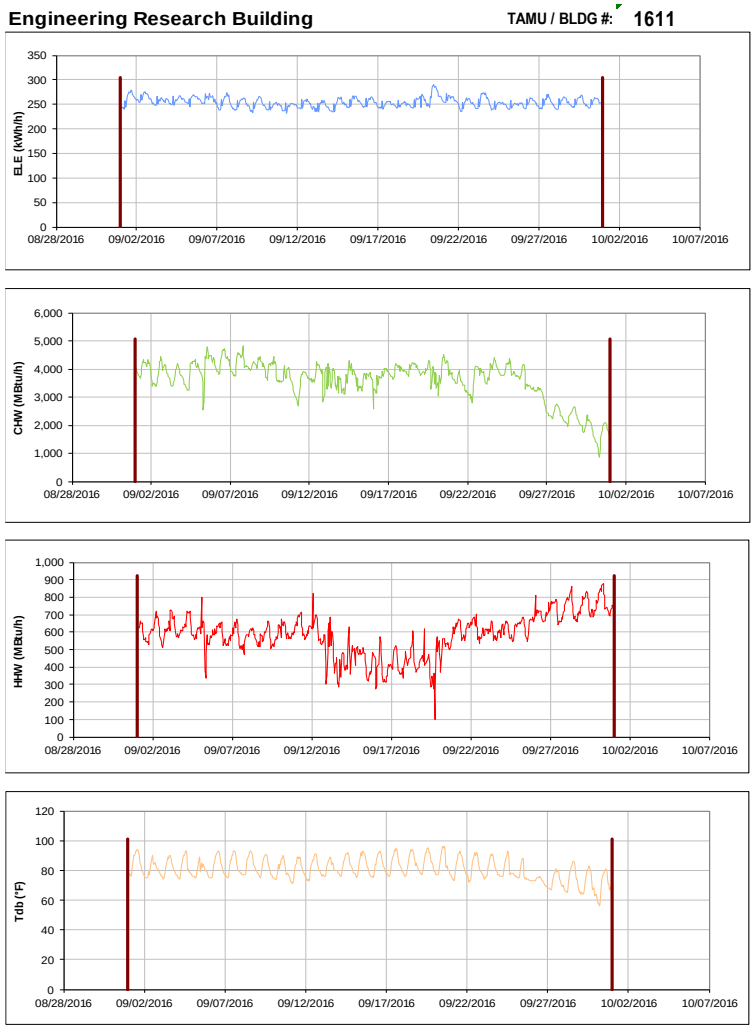


Figure III-183 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Engineering Research Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

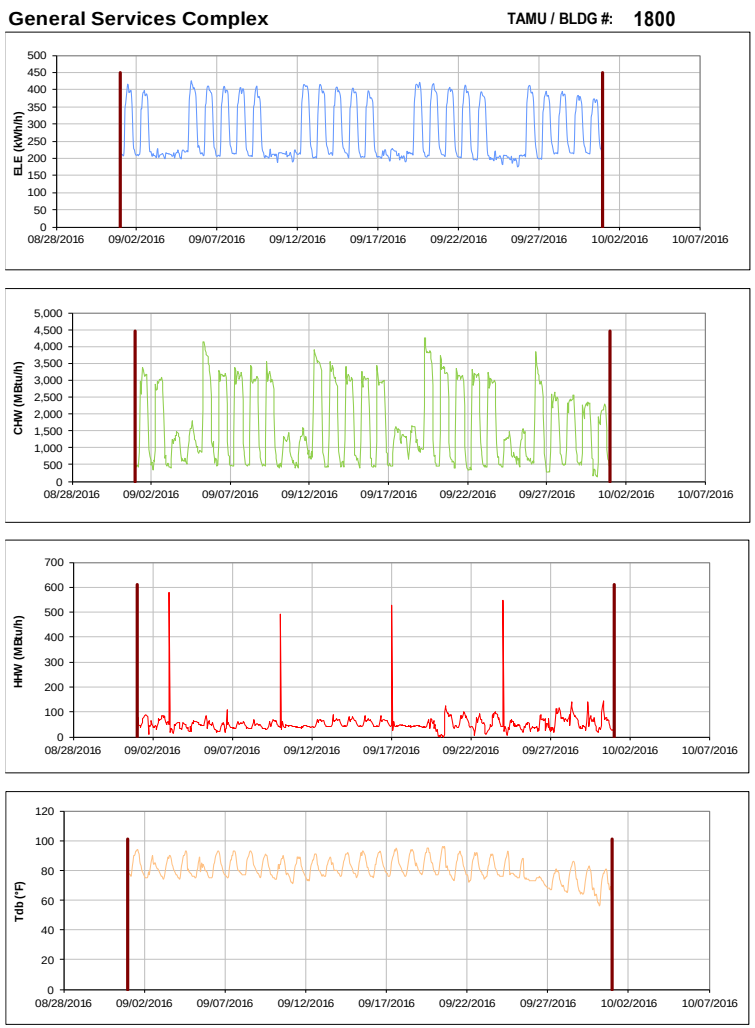


Figure III-184 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for General Services Complex during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

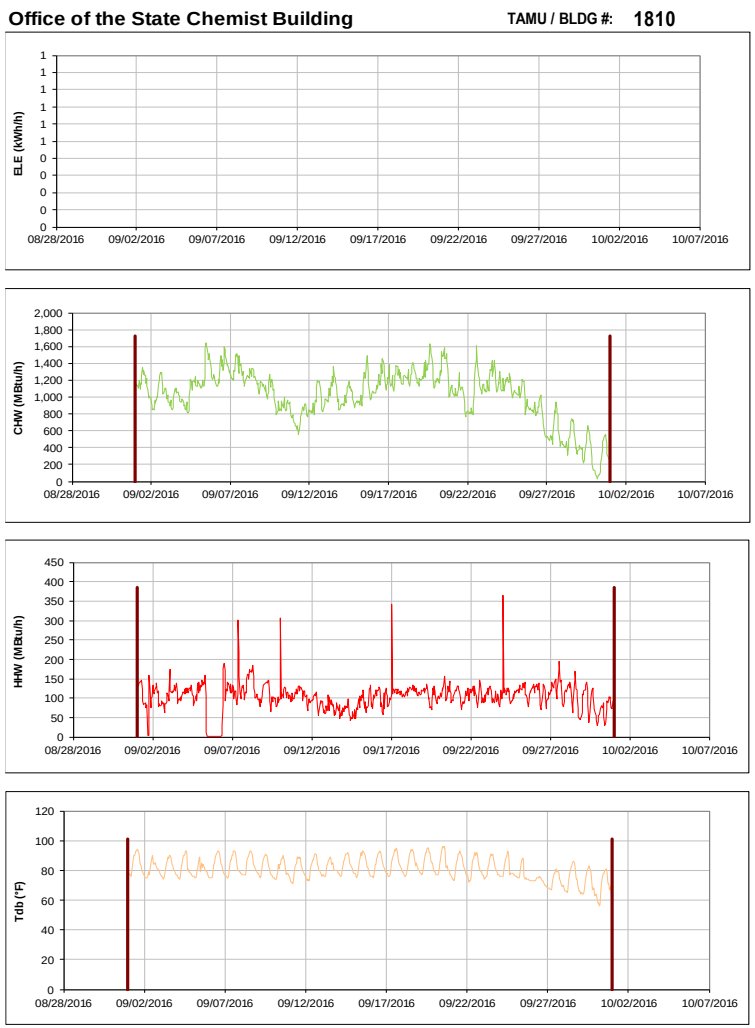


Figure III-185 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Office of the State Chemist Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

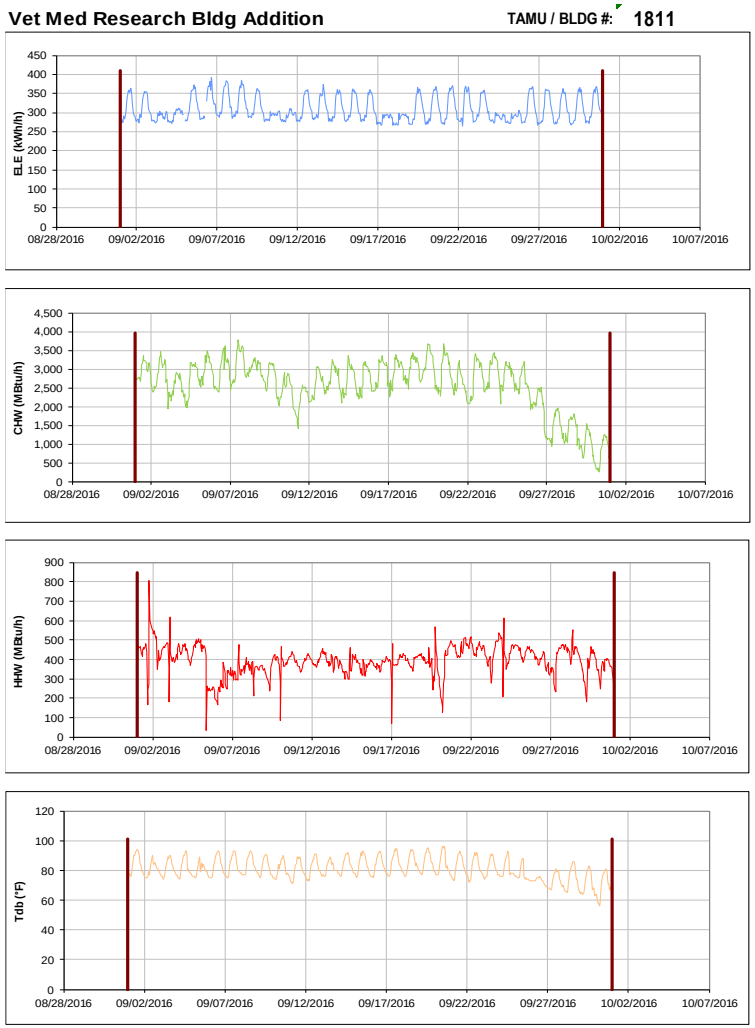


Figure III-186 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Vet Med Research Bldg Addition during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

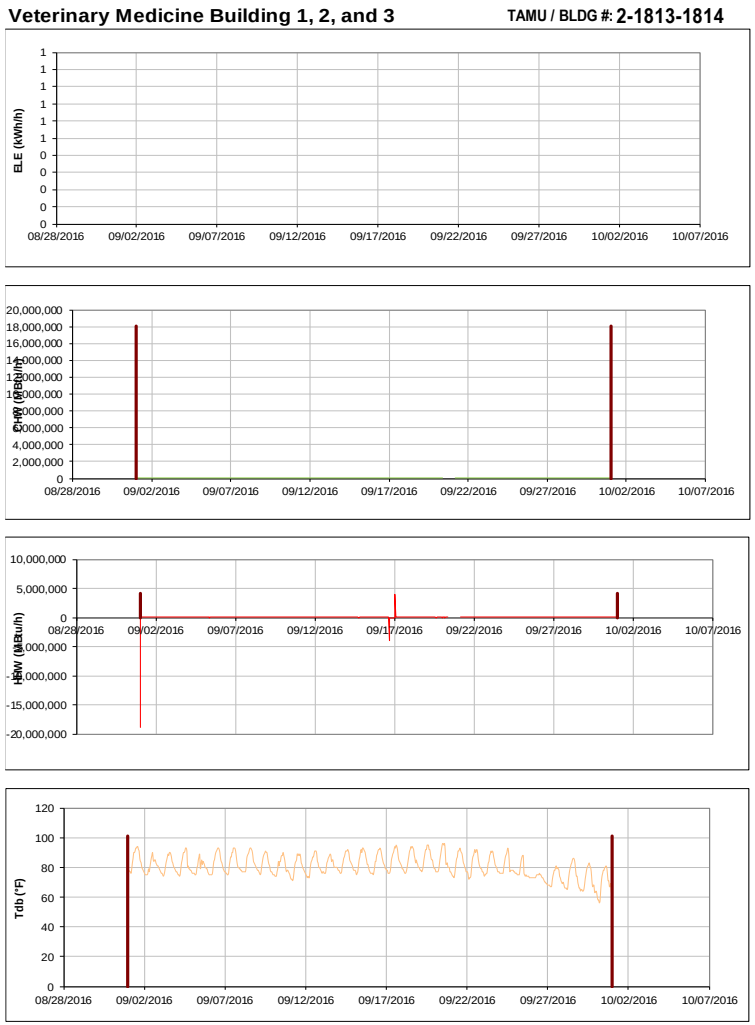


Figure III-187 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Veterinary Medicine Building 1, 2, and 3 during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

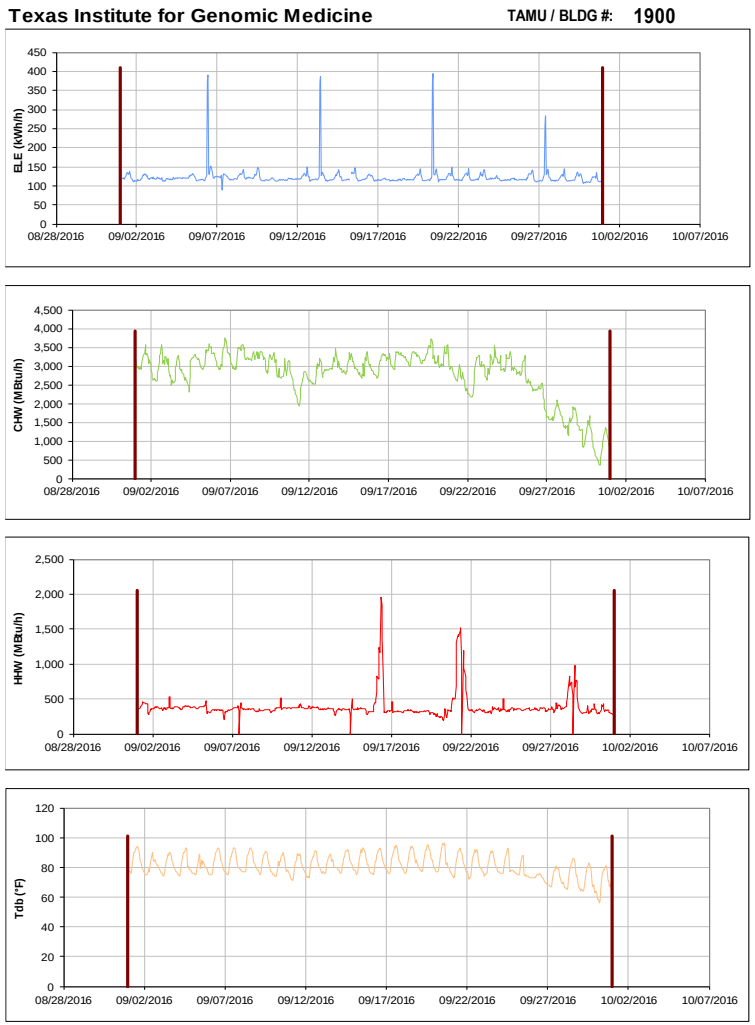


Figure III-188 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas Institute for Genomic Medicine during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

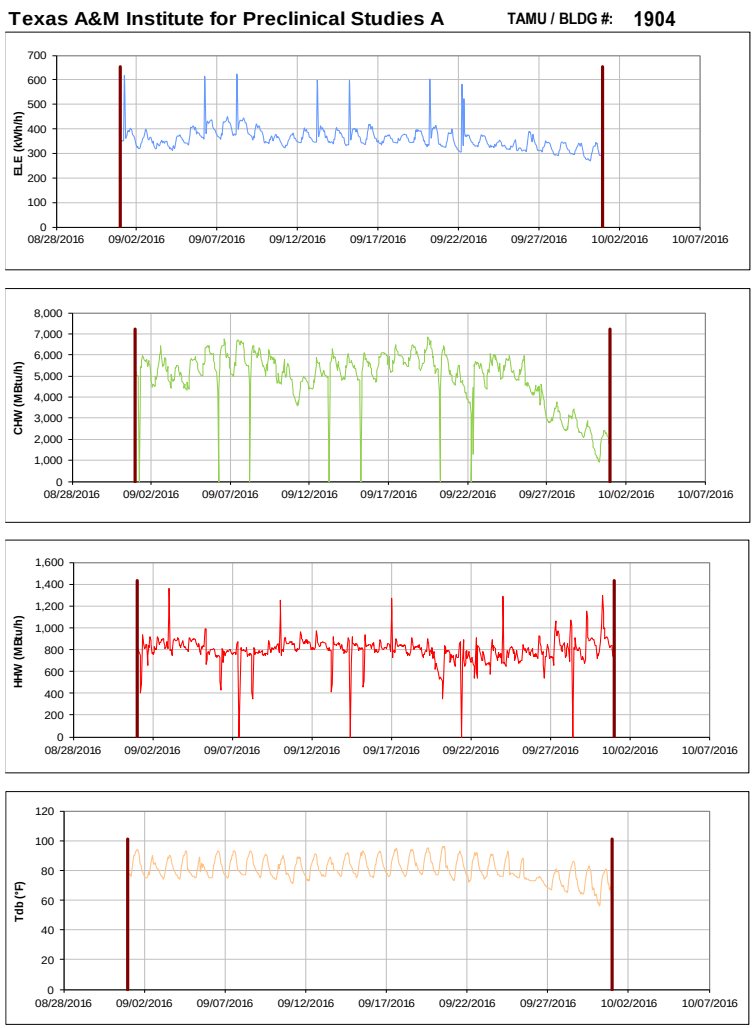


Figure III-189 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Texas A&M Institute for Preclinical Studies A during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

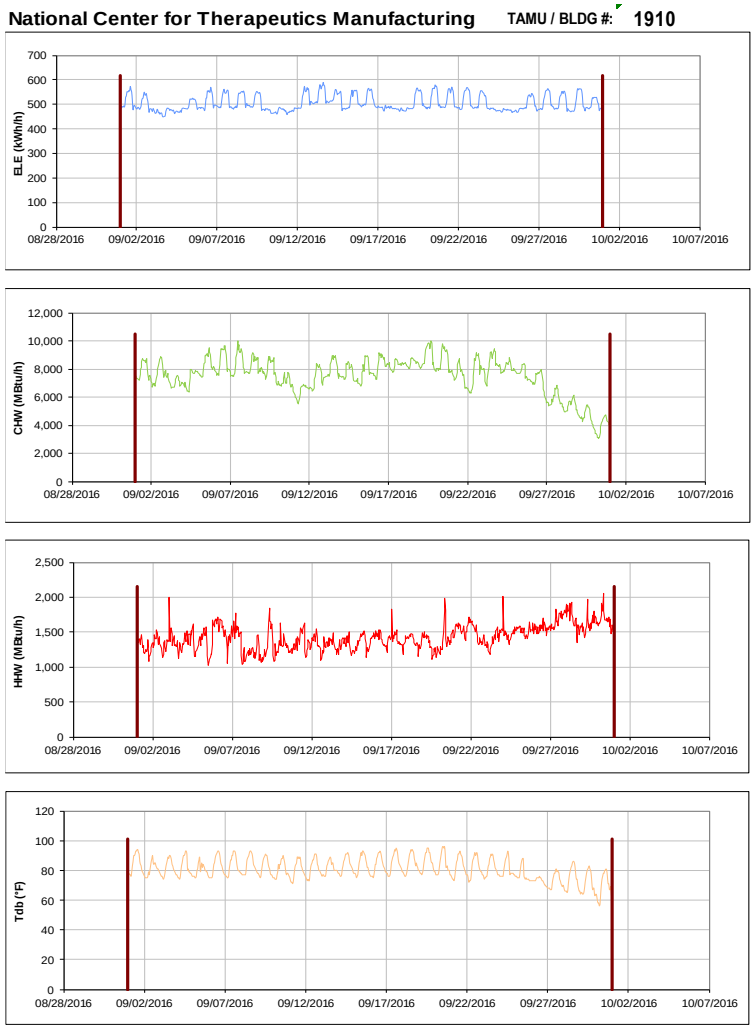


Figure III-190 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for National Center for Therapeutics Manufacturing during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

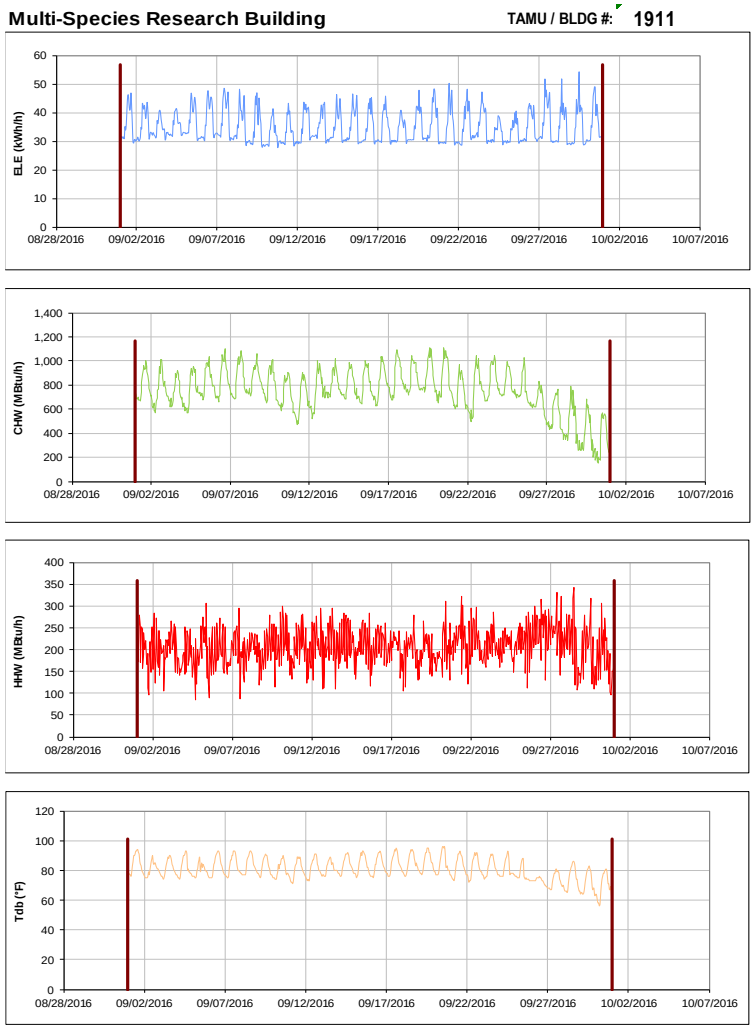


Figure III-191 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for Multi-Species Research Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

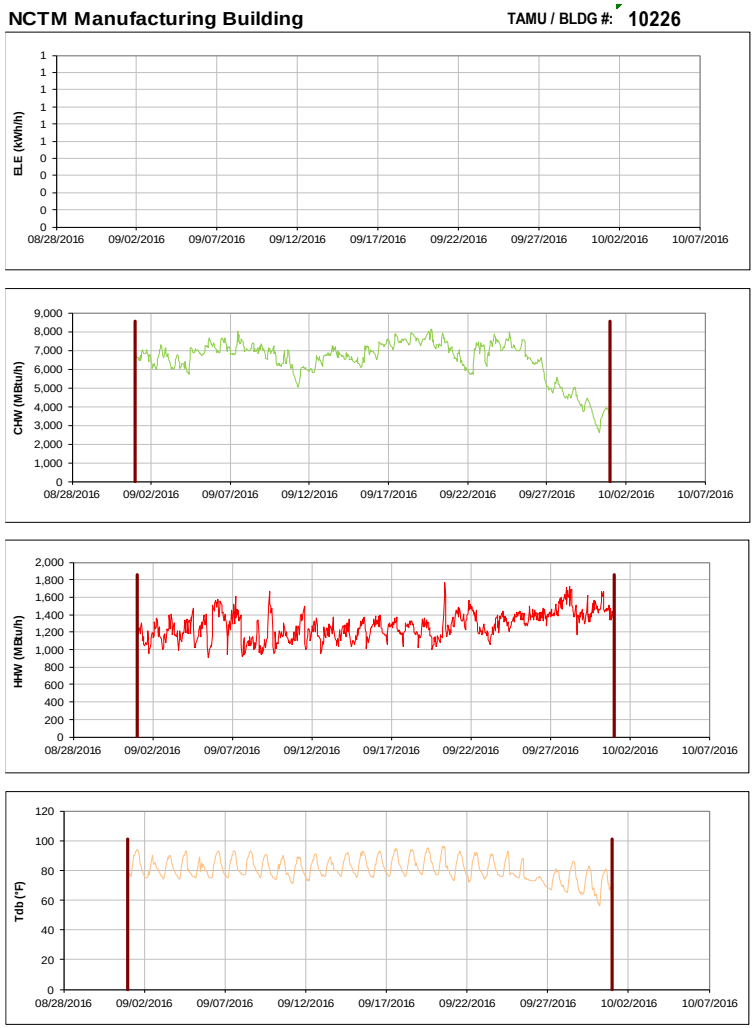


Figure III-192 Hourly Whole Building Electricity, Chilled Water, and Hot Water Consumption for NCTM Manufacturing Building during the Month of September 2016 and the Corresponding Hourly Outdoor Dry Bulb Temperature for College Station, TX

IV. Energy Balance Plots for September 2016 Consumption

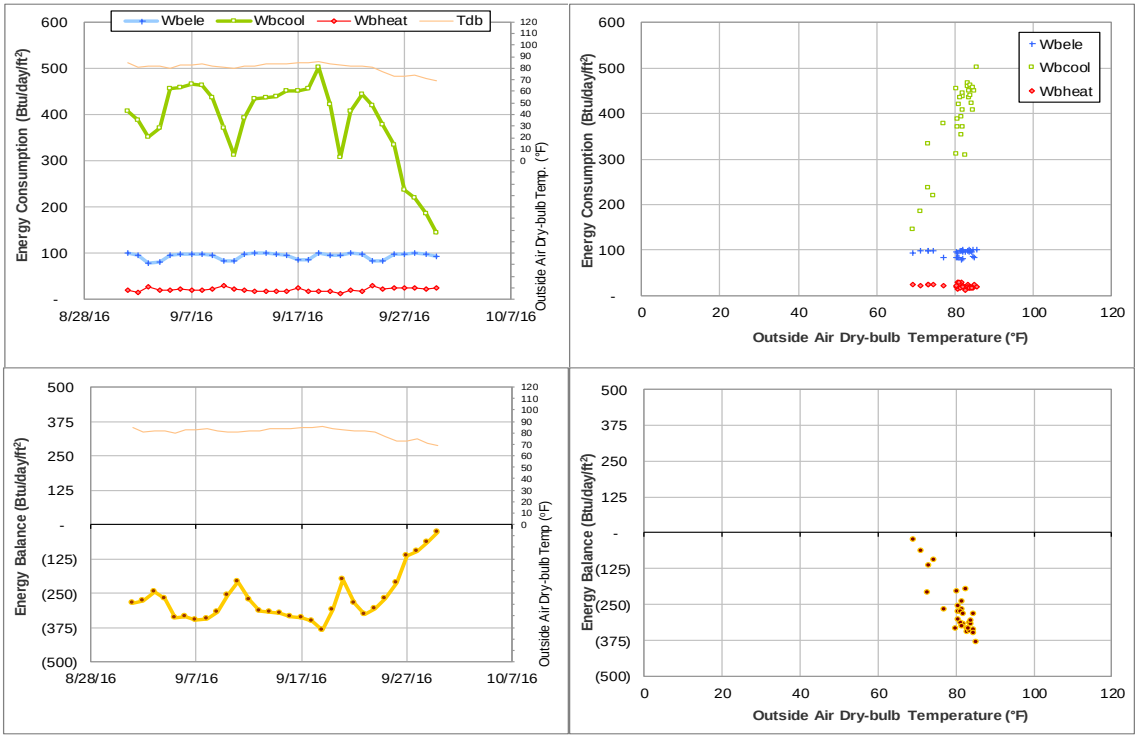


Figure IV-1 Emerging Technologies Building TAMU BLDG # 270 Energy Balance Plot during September 2016

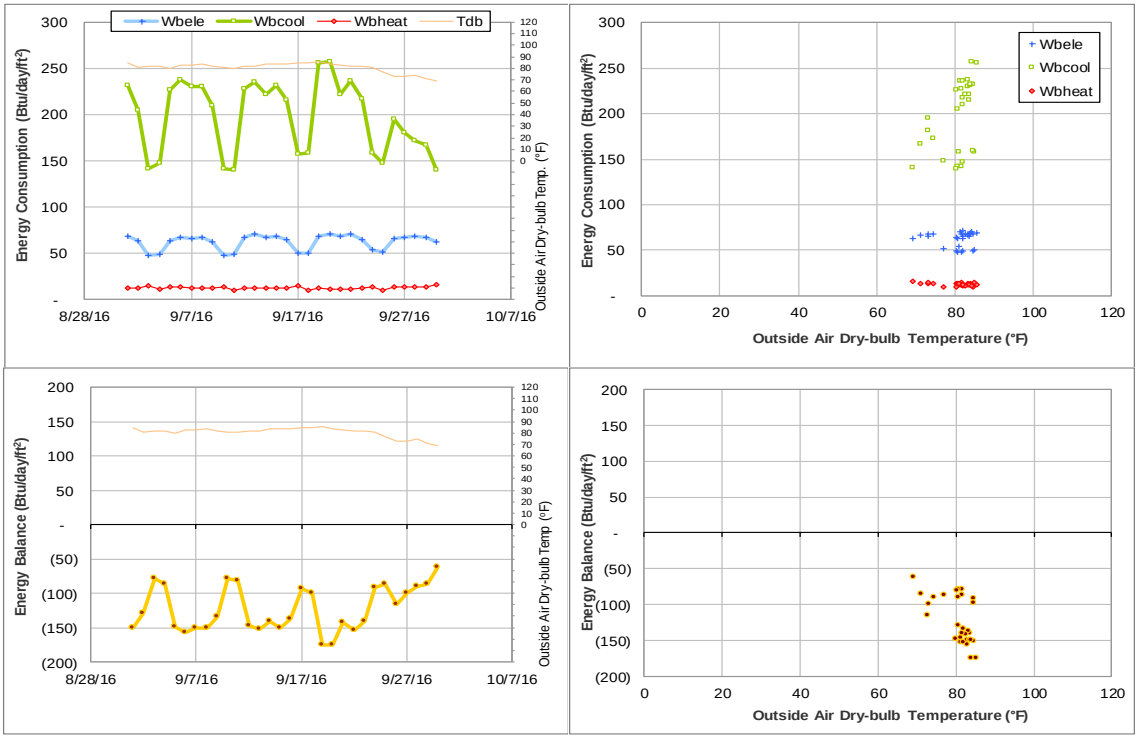


Figure IV-2 Liberal Arts and Arts & Humanities Building TAMU BLDG # 275 Energy Balance Plot during September 2016

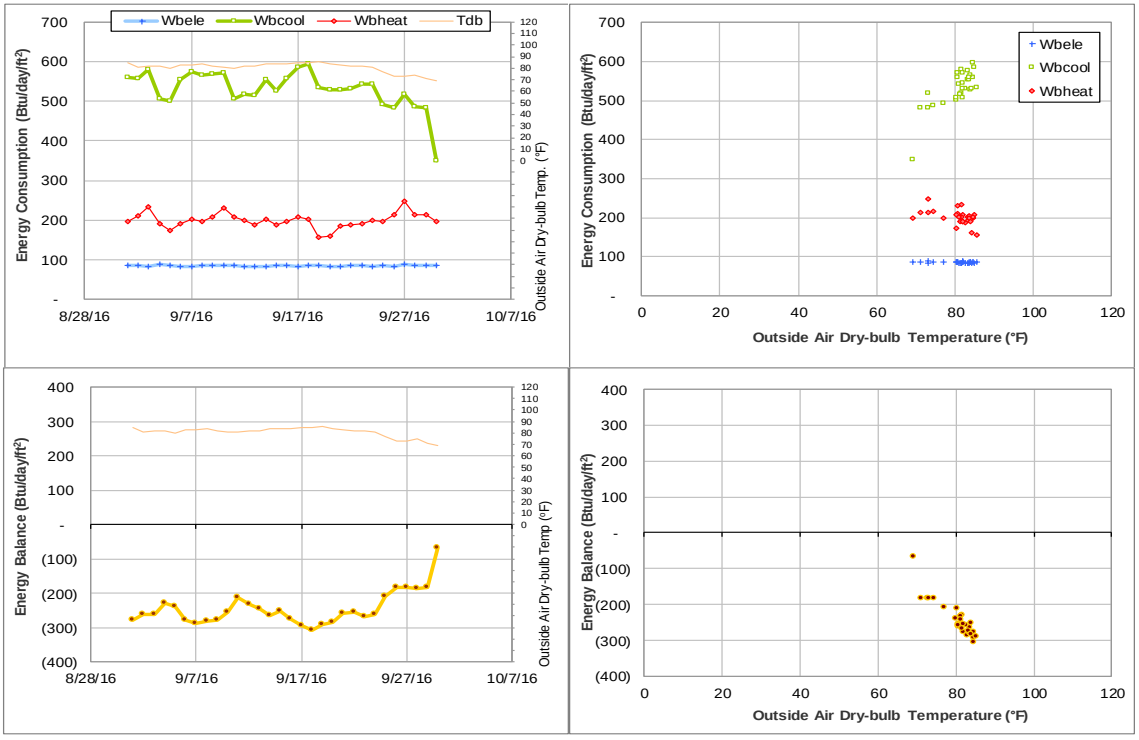


Figure IV-3 Wells Residence Hall TAMU BLDG # 290 Energy Balance Plot during September 2016

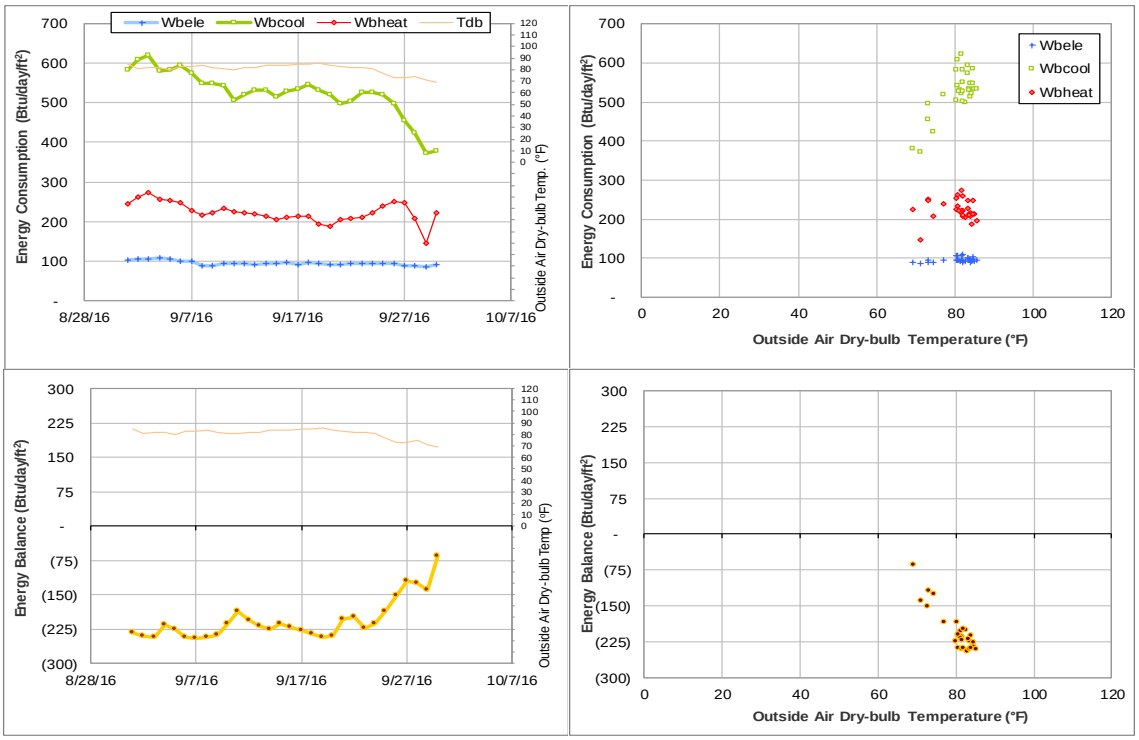


Figure IV-4 Rudder Residence Hall TAMU BLDG # 291 Energy Balance Plot during September 2016

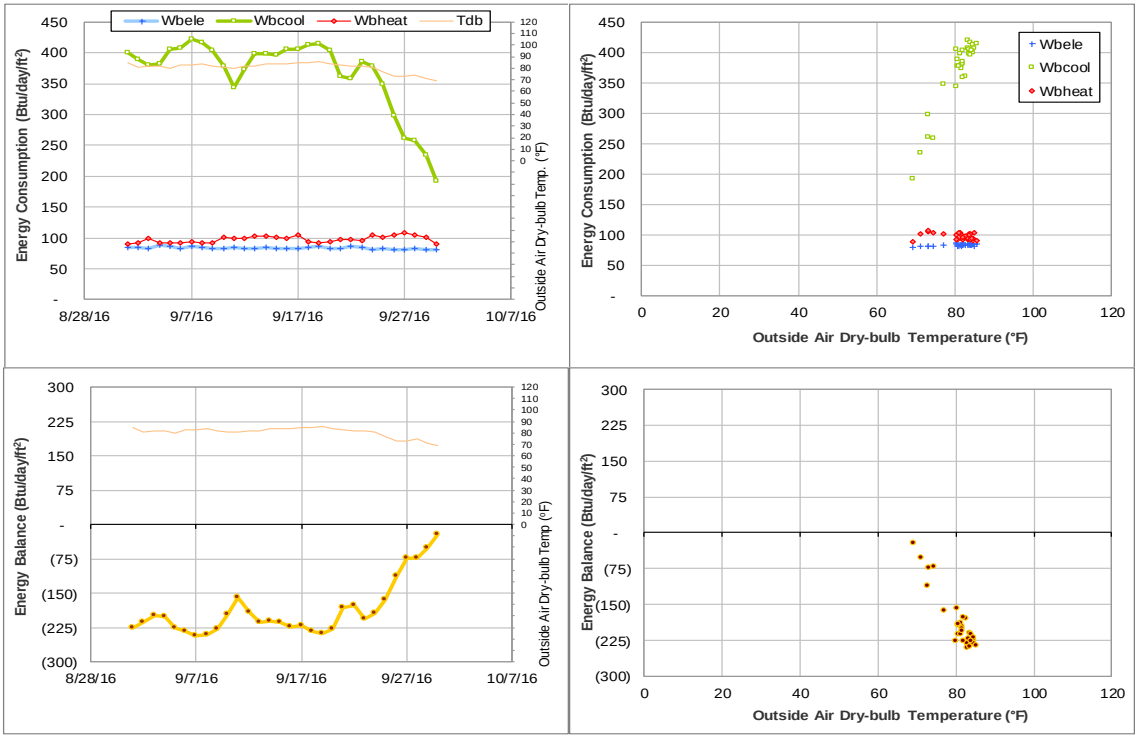


Figure IV-5 Eppright Residence Hall TAMU BLDG # 292 Energy Balance Plot during September 2016

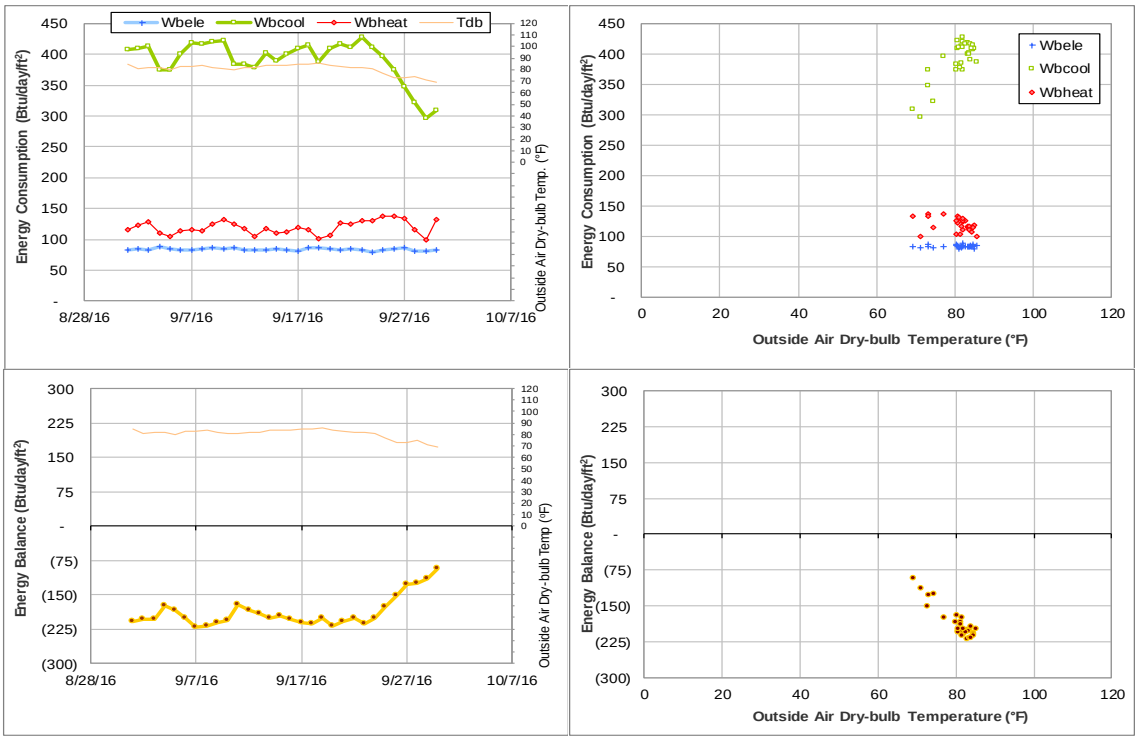


Figure IV-6 Appelt Residence Hall TAMU BLDG # 293 Energy Balance Plot during September 2016

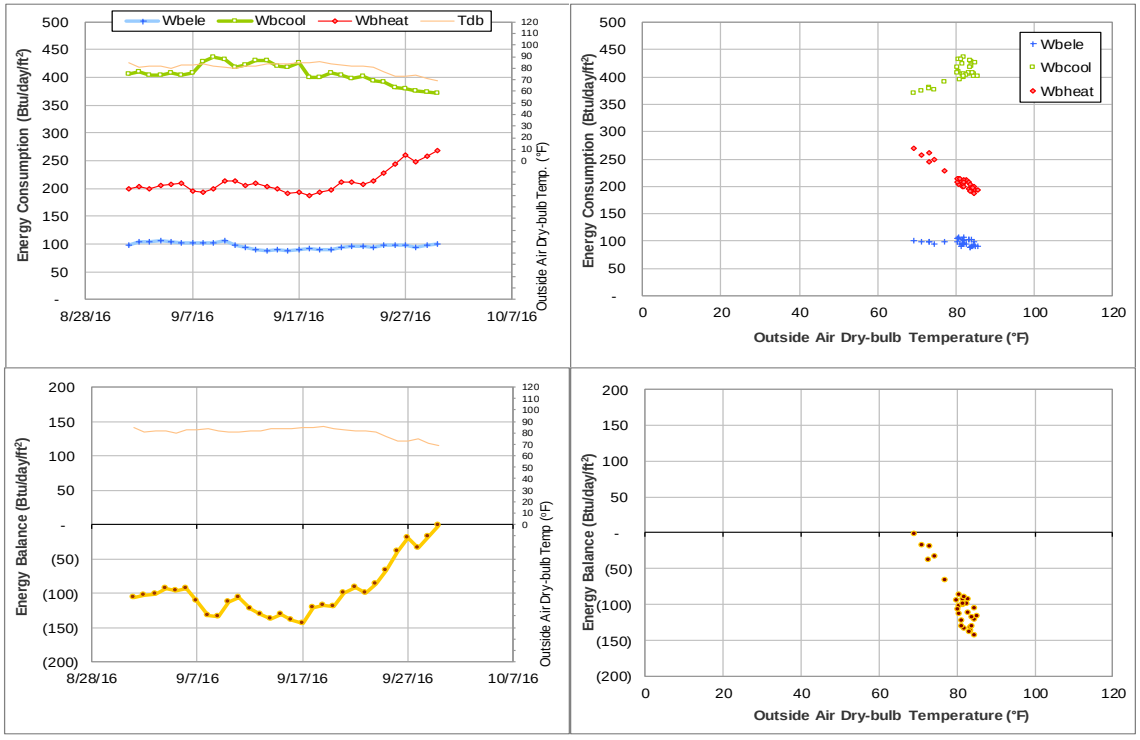


Figure IV-7 Lechner Residence Hall TAMU BLDG # 294 Energy Balance Plot during September 2016

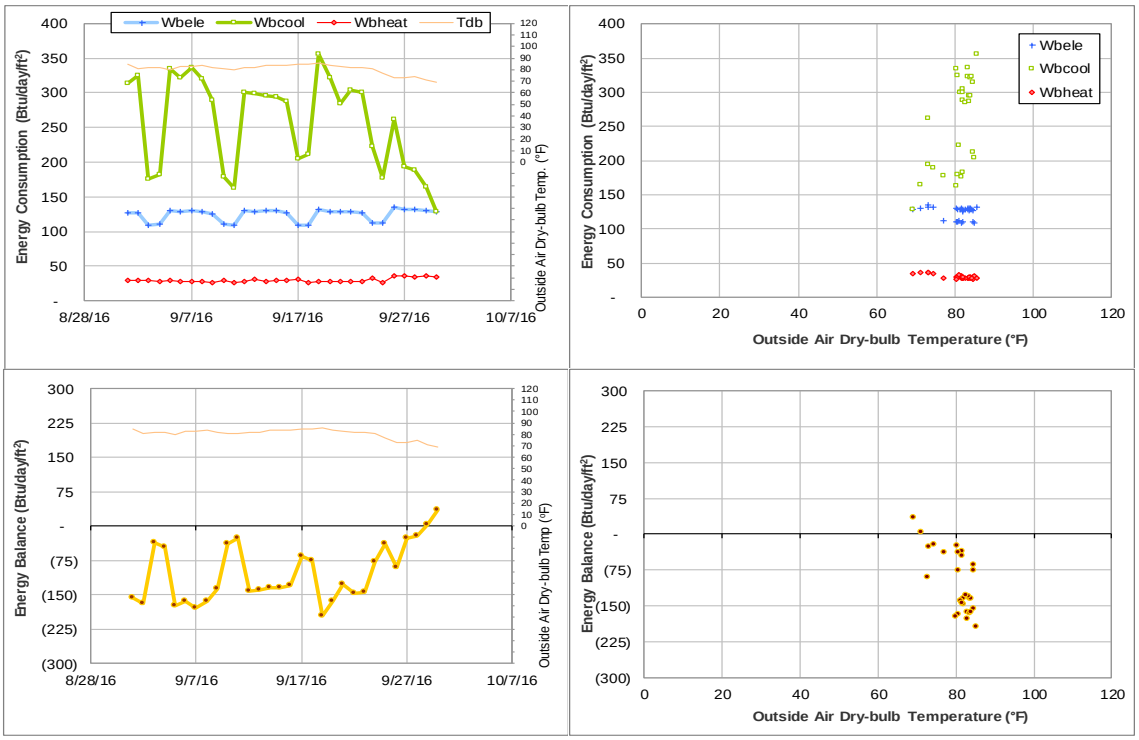


Figure IV-8 Mitchell Inst. for Fundamental Phys & Astronomy TAMU BLDG # 296 Energy Balance Plot during September 2016

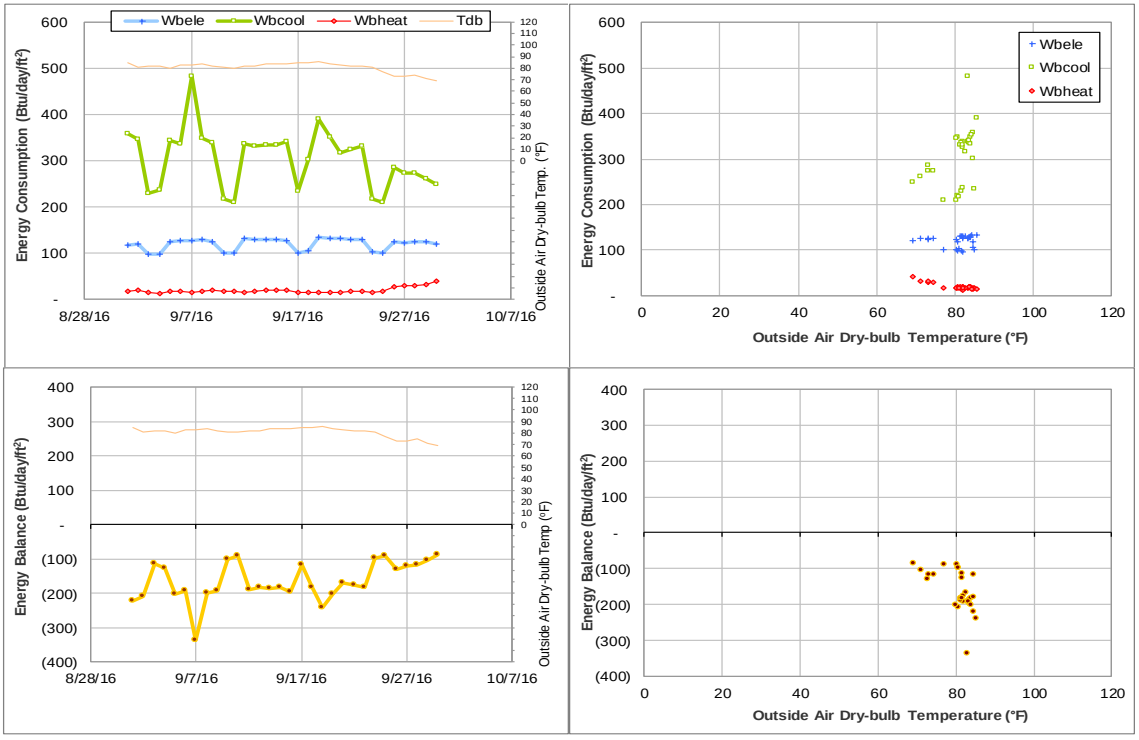


Figure IV-9 CE TTI Office & Lab Building TAMU BLDG # 325 Energy Balance Plot during September 2016

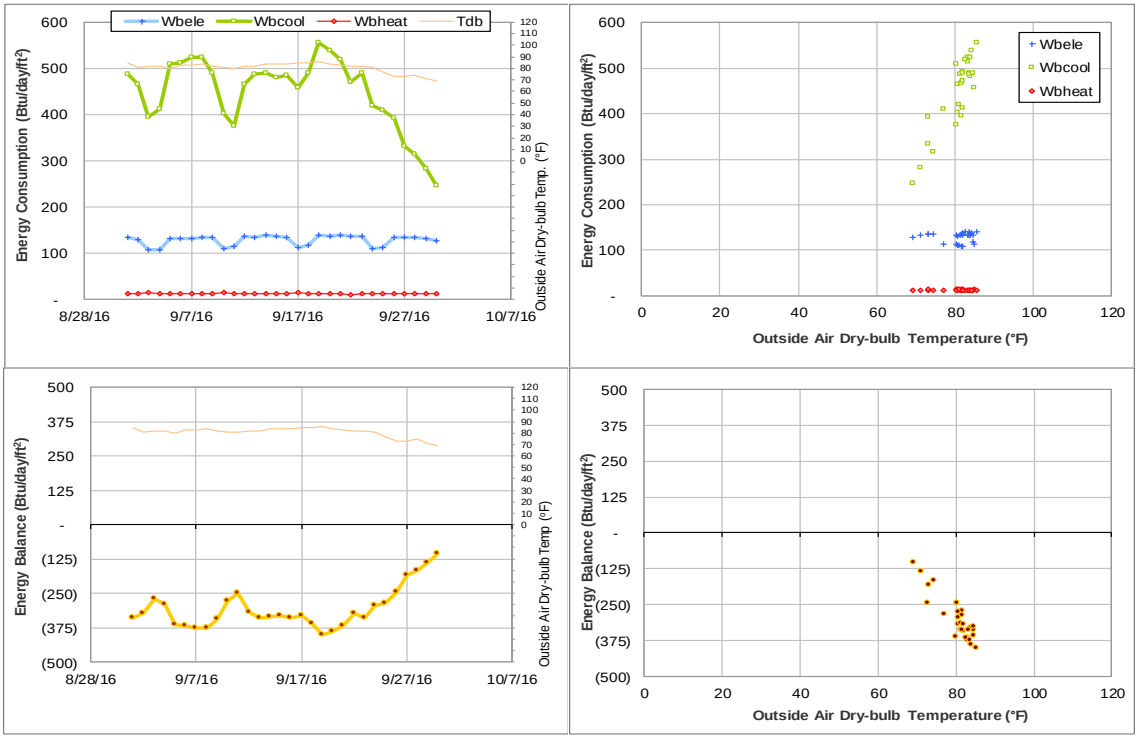


Figure IV-10 Bright Aerospace Building TAMU BLDG # 353 Energy Balance Plot during September 2016

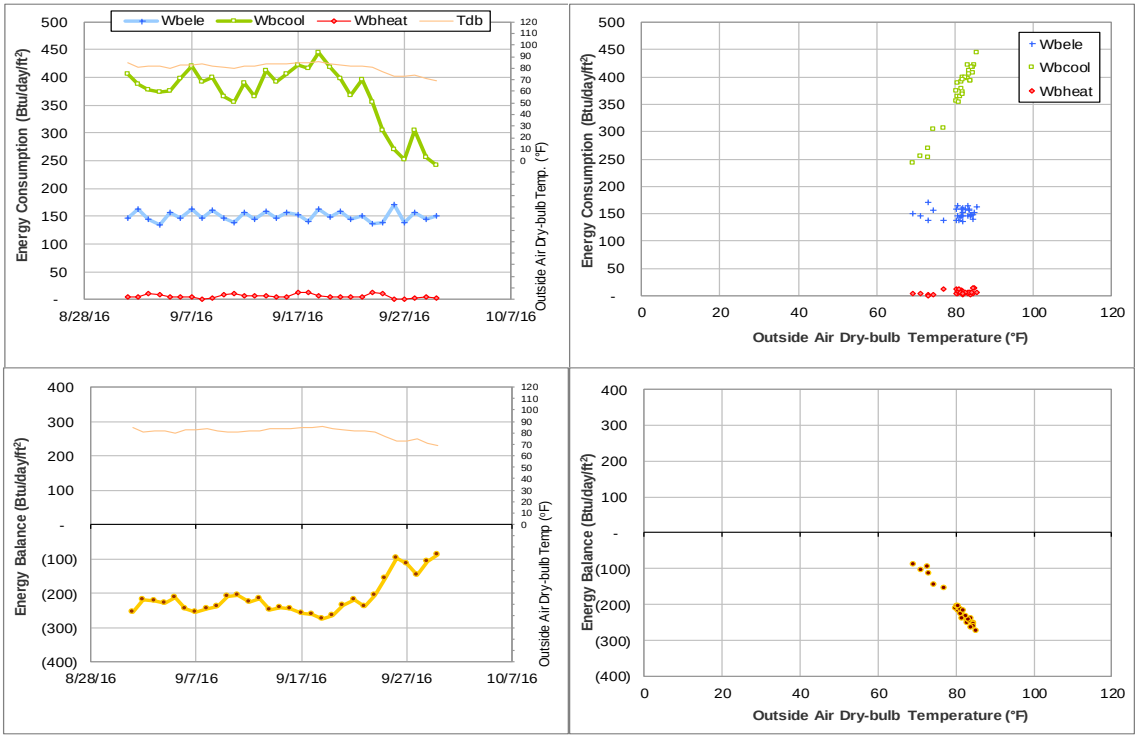


Figure IV-11 Davis Football Player Development Center TAMU BLDG # 358 Energy Balance Plot during September 2016

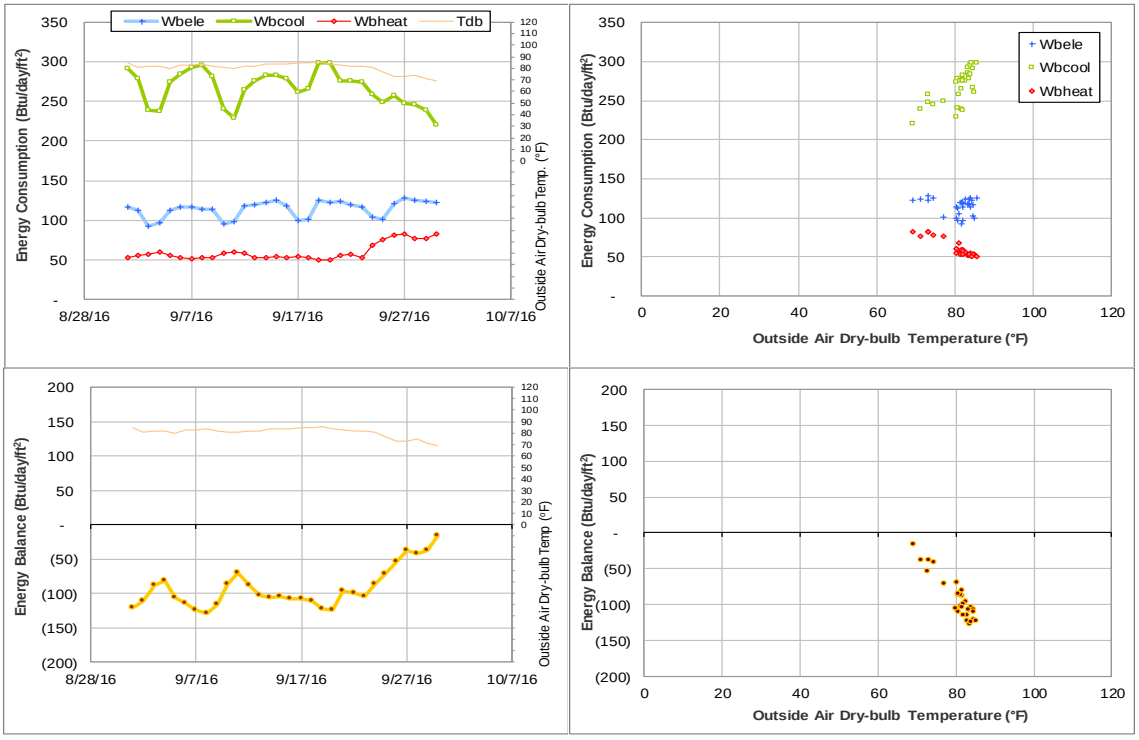


Figure IV-12 Architecture Building B&C TAMU BLDG # 359 and #432Energy Balance Plot during September 2016

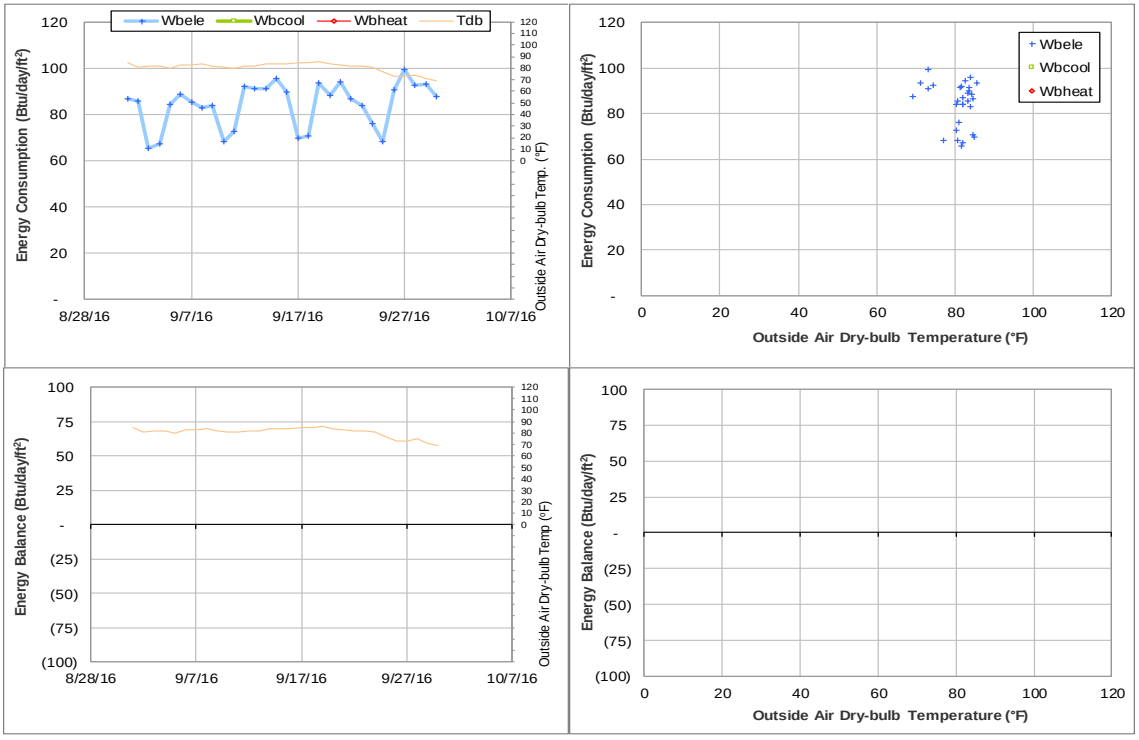


Figure IV-13 Architecture Building B TAMU BLDG # 359 Energy Balance Plot during September 2016

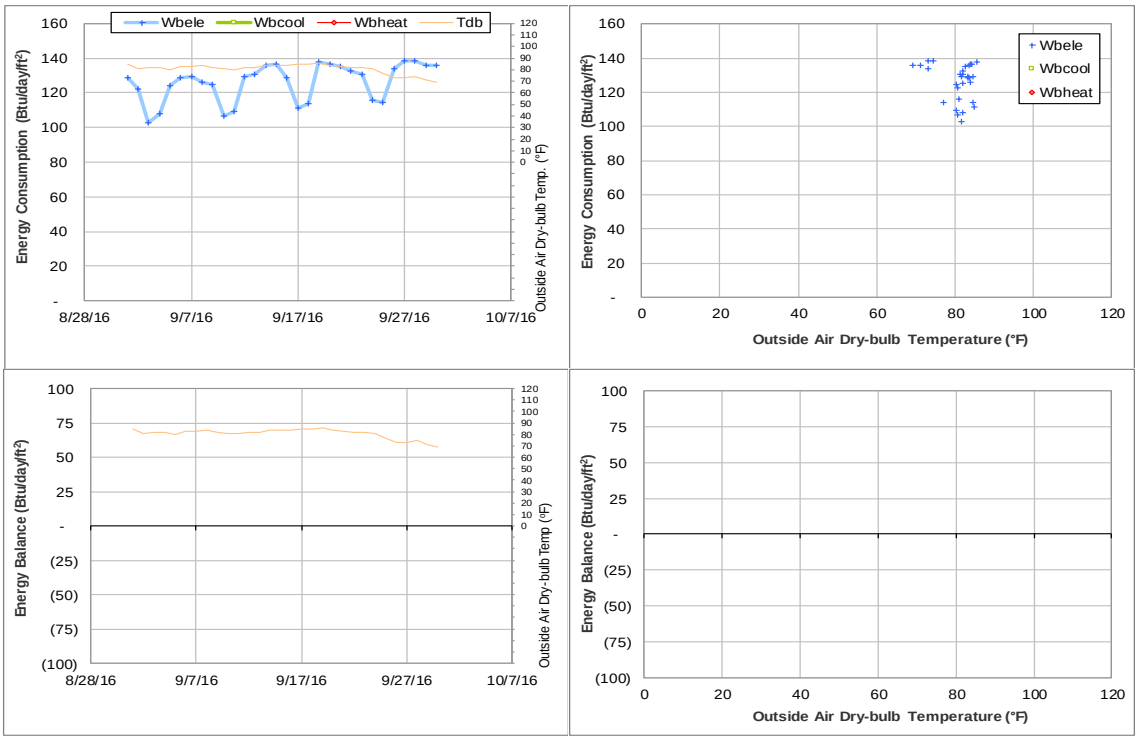


Figure IV-14 Architecture Building C TAMU BLDG # 432 Energy Balance Plot during September 2016

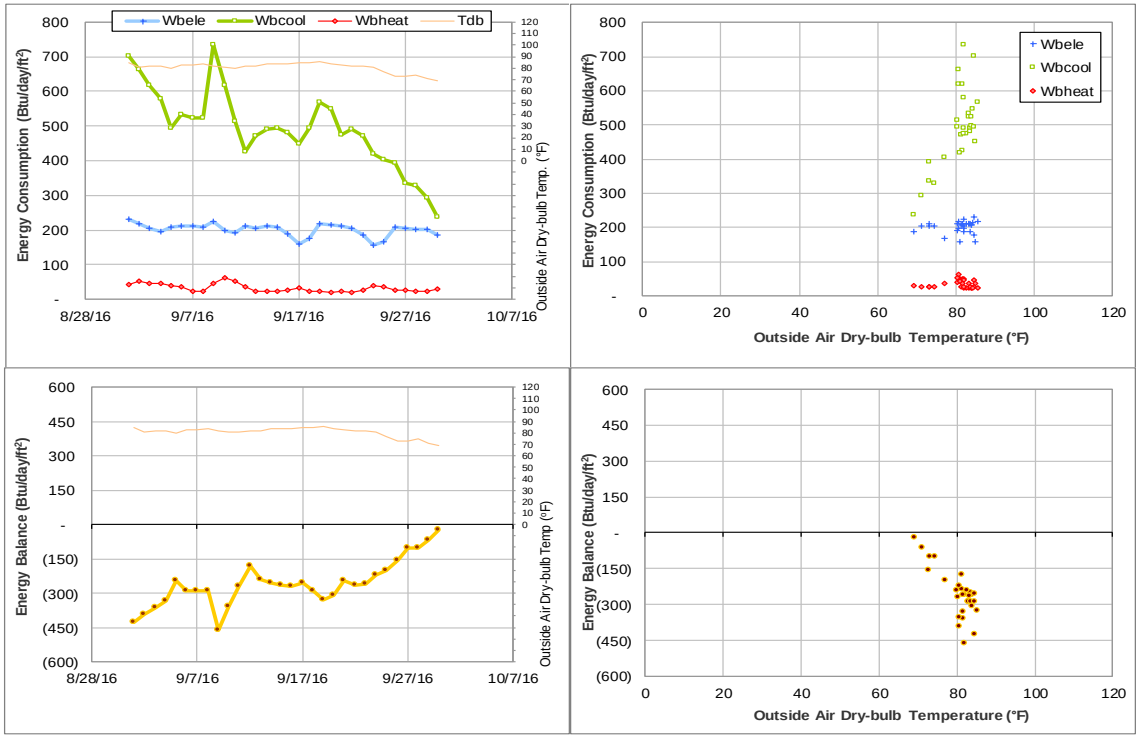


Figure IV-15 Bright Football Complex TAMU BLDG # 361 Energy Balance Plot during September 2016

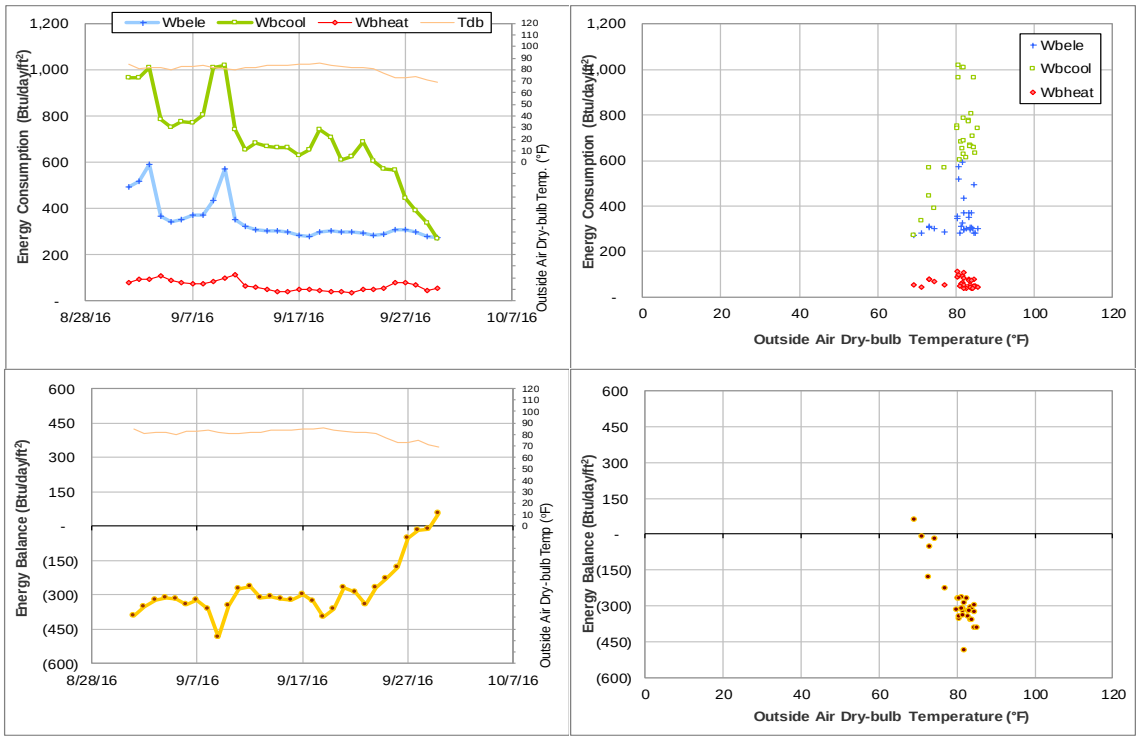


Figure IV-16 Kyle Field TAMU BLDG # 367 Energy Balance Plot during September 2016

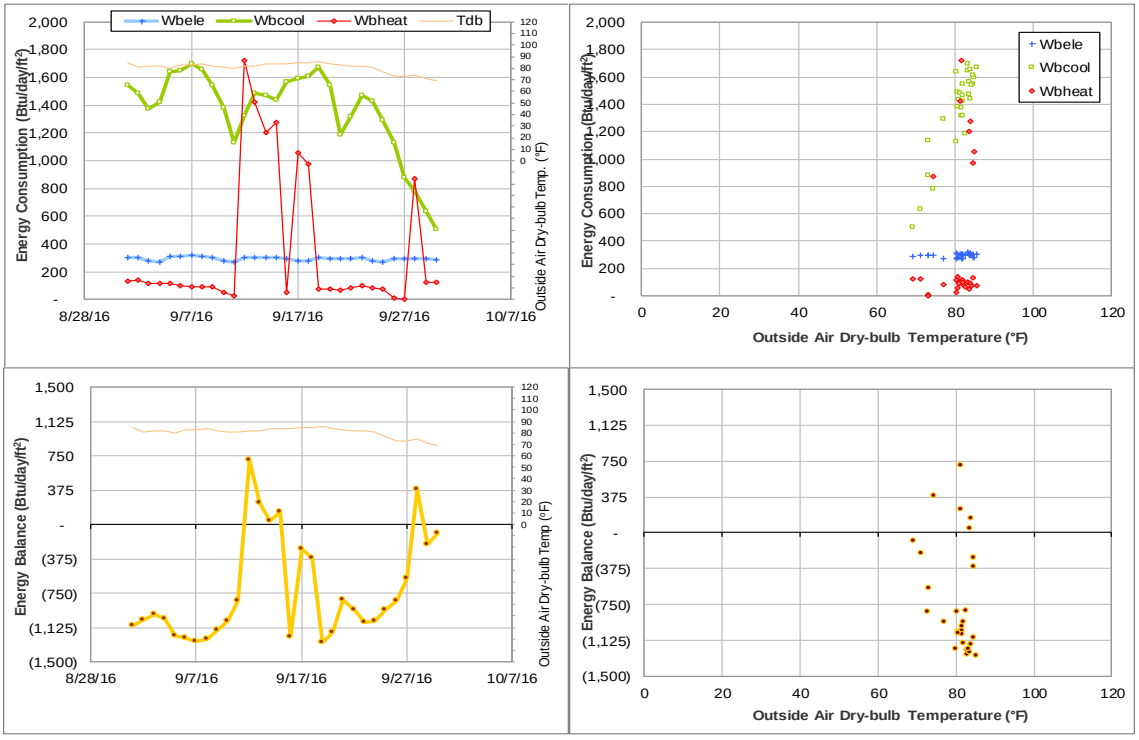


Figure IV-17 Chemistry Building Addition TAMU BLDG # 376 Energy Balance Plot during September 2016

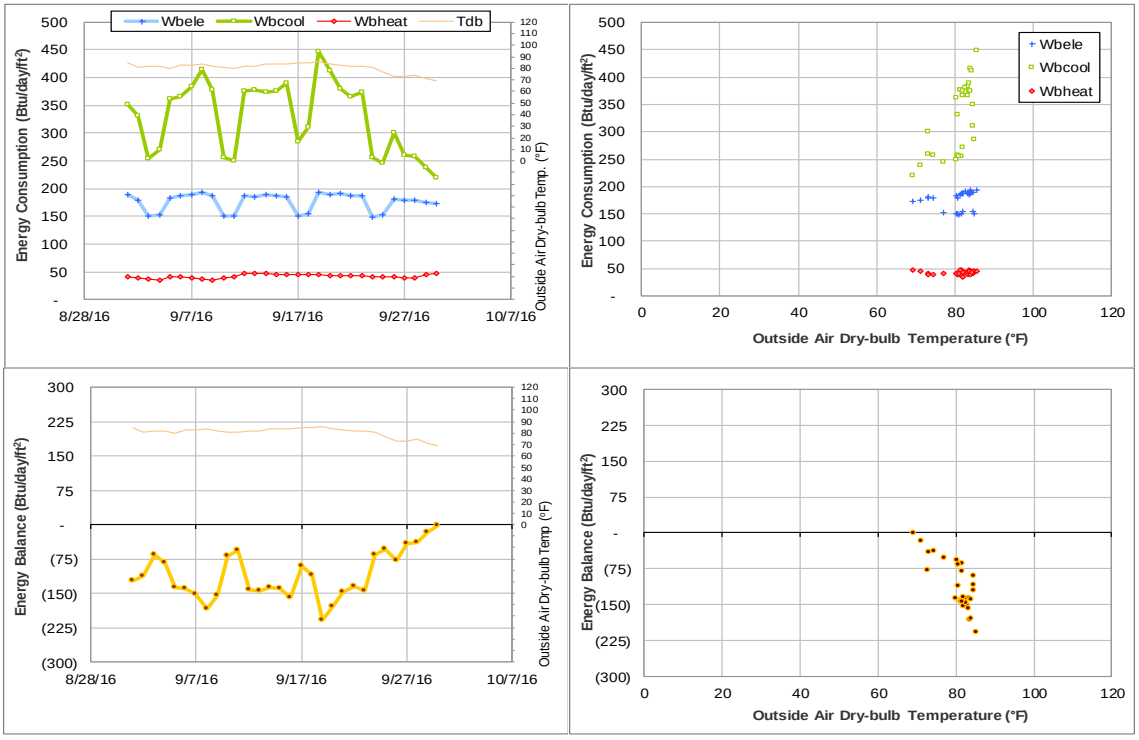


Figure IV-18 Koldus Building TAMU BLDG # 383 Energy Balance Plot during September 2016

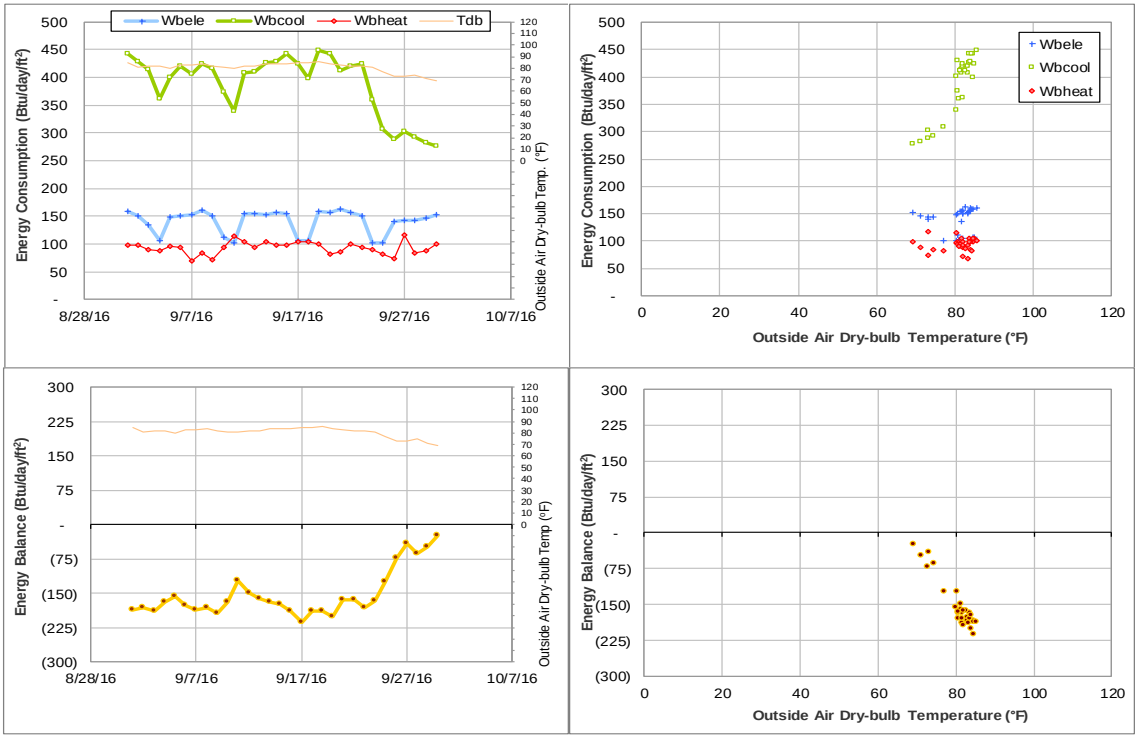


Figure IV-19 Sanders Corps of Cadets Center TAMU BLDG # 384 Energy Balance Plot during September 2016

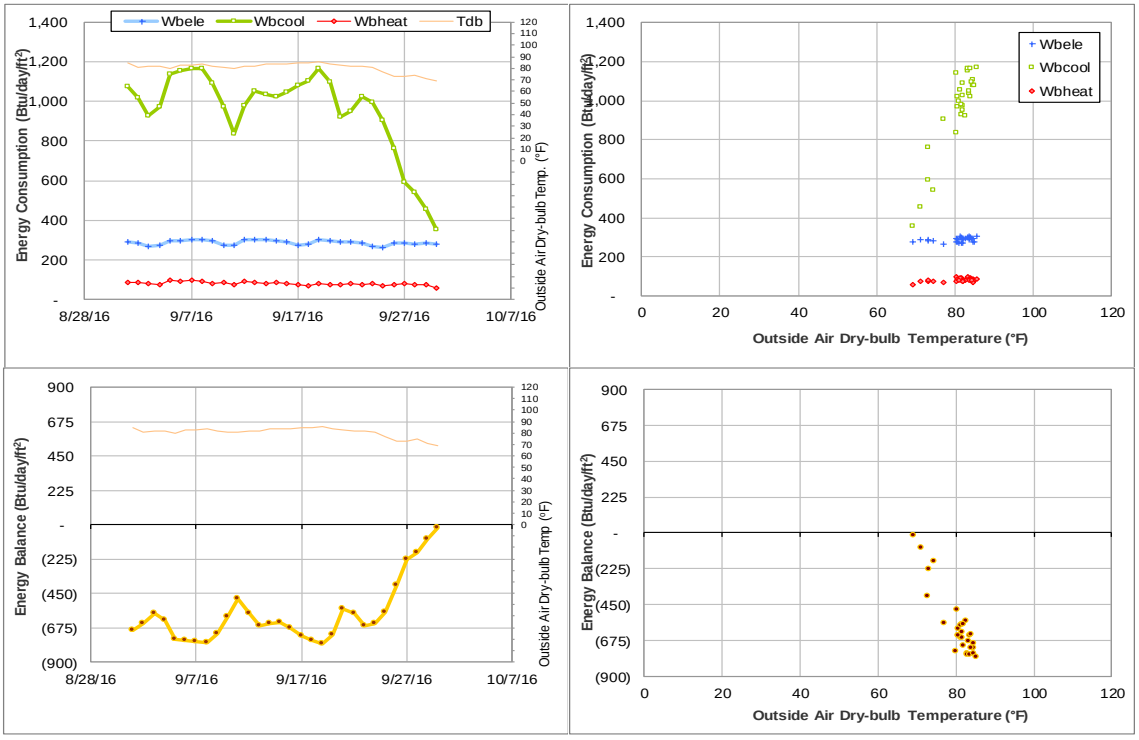


Figure IV-20 Jack E. Brown Chemical Engineering Building TAMU BLDG # 386 Energy Balance Plot during September 2016

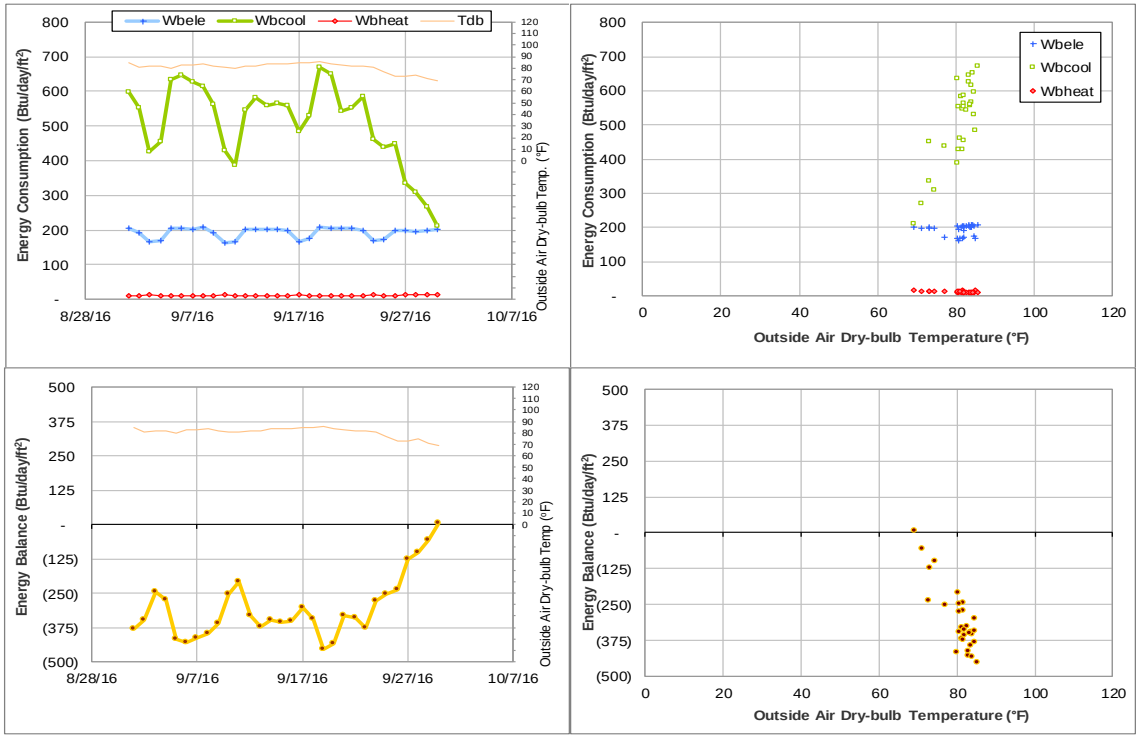


Figure IV-21 Richardson Petroleum Engineering Building TAMU BLDG # 387 Energy Balance Plot during September 2016

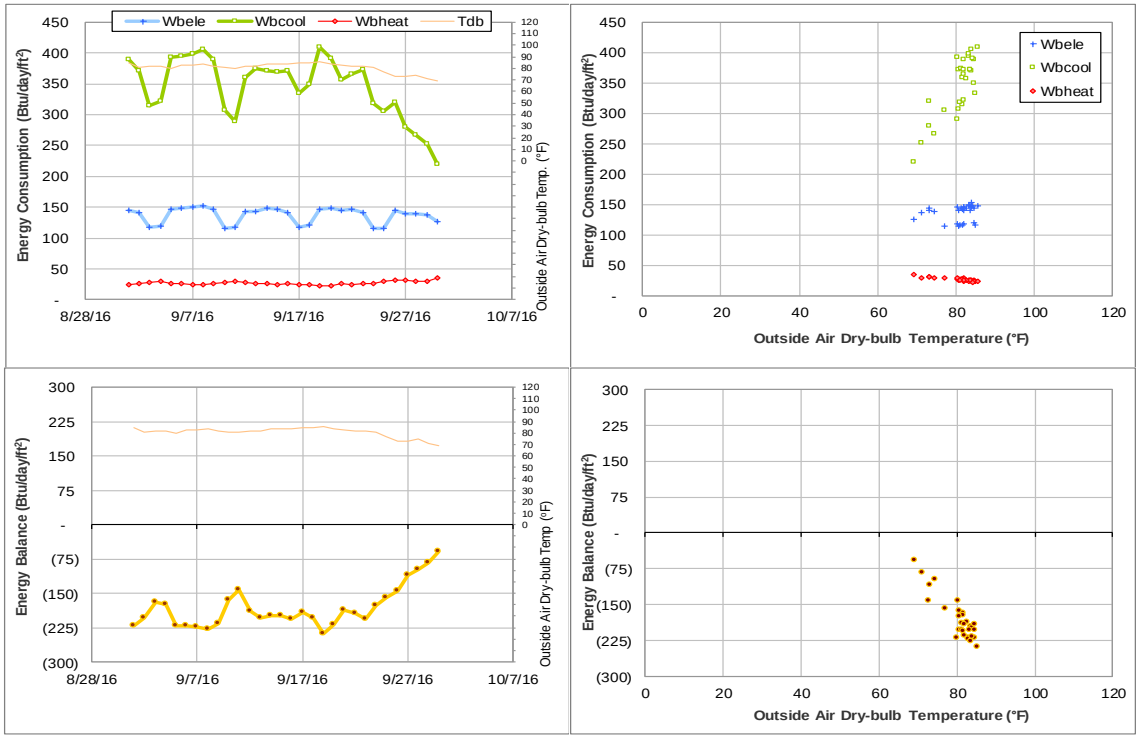


Figure IV-22 James J. Cain'51 and Mechanical Engineering Office Building TAMU BLDG # 391 Energy Balance Plot during September 2016

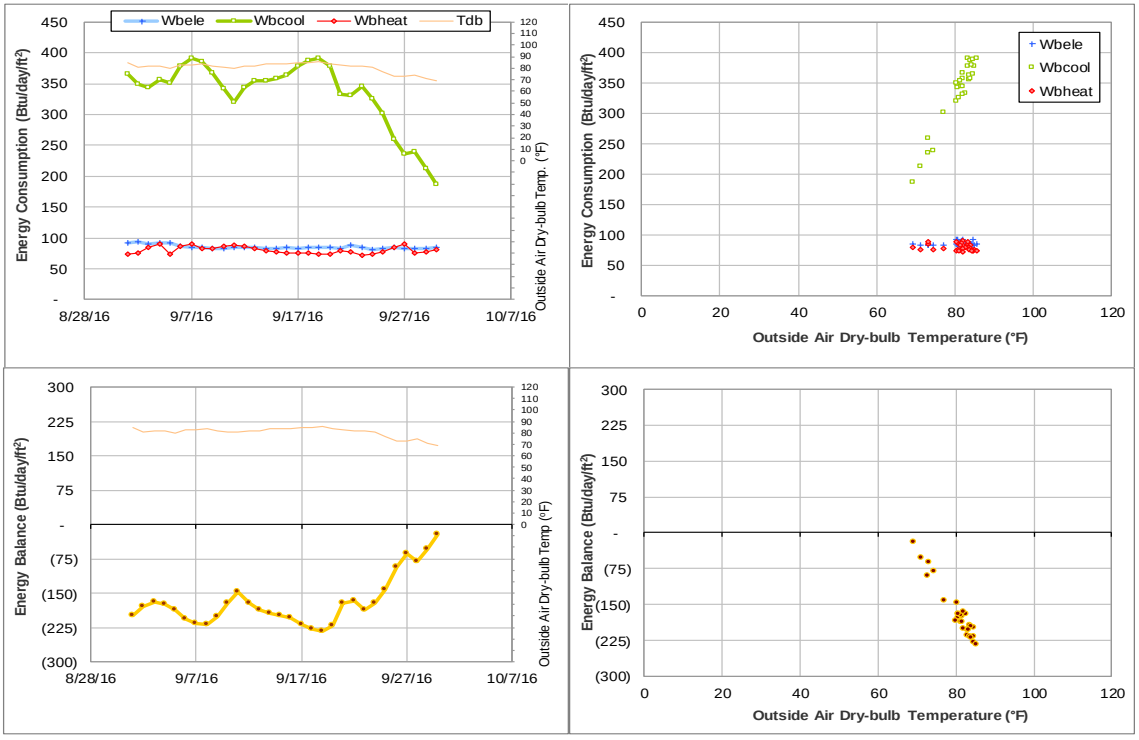


Figure IV-23 Underwood Residence Hall TAMU BLDG # 394 Energy Balance Plot during September 2016

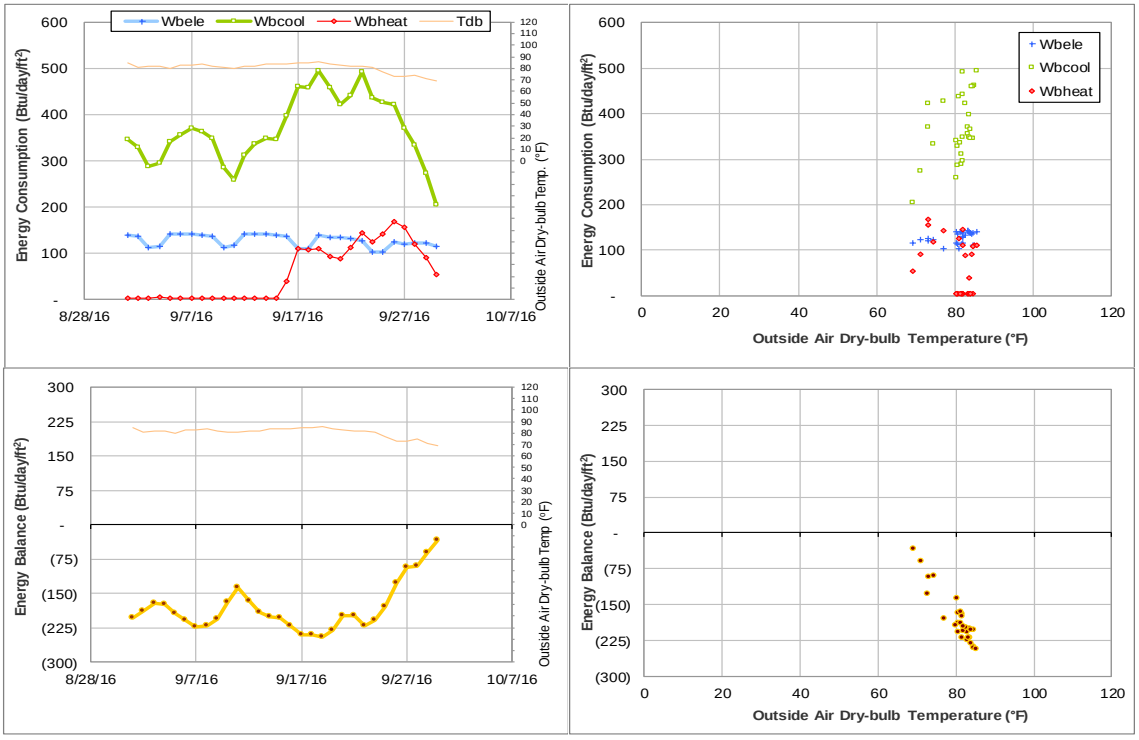


Figure IV-24 Langford Architecture Center Building A TAMU BLDG # 398 Energy Balance Plot during September 2016

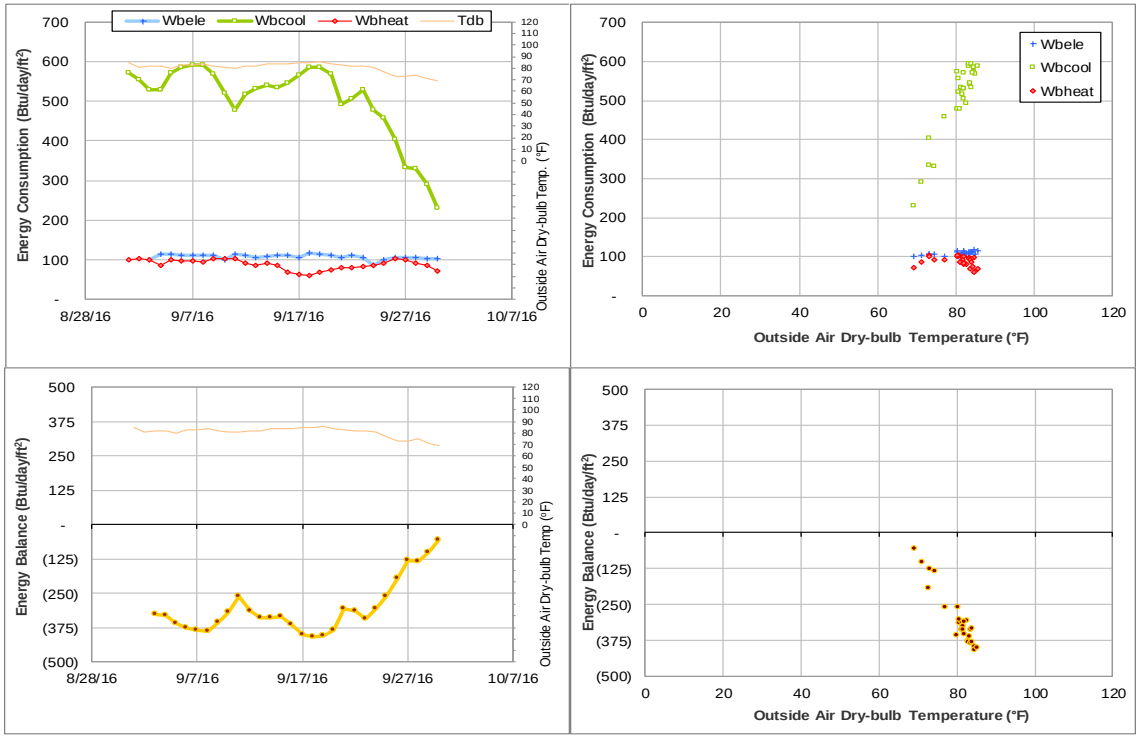


Figure IV-25 Spence Hall, Briggs Hall, and Ash II LLC TAMU BLDG # 400, #402, #1405 Energy Balance Plot during September 2016

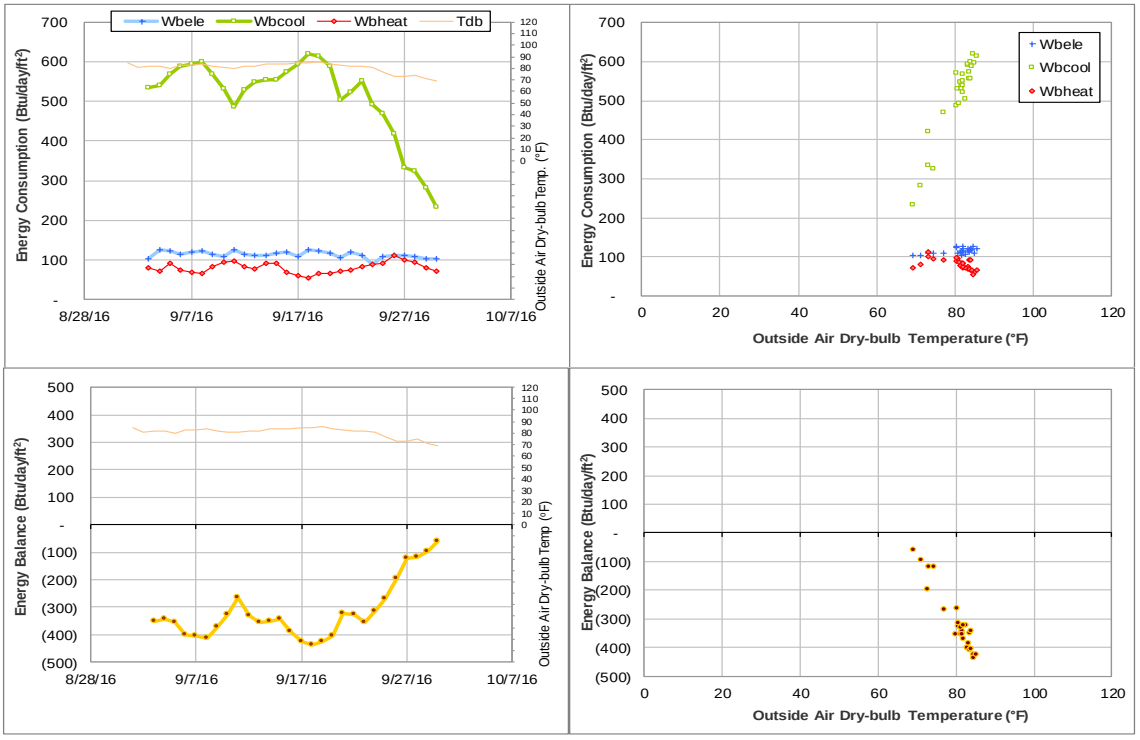


Figure IV-26 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during September 2016

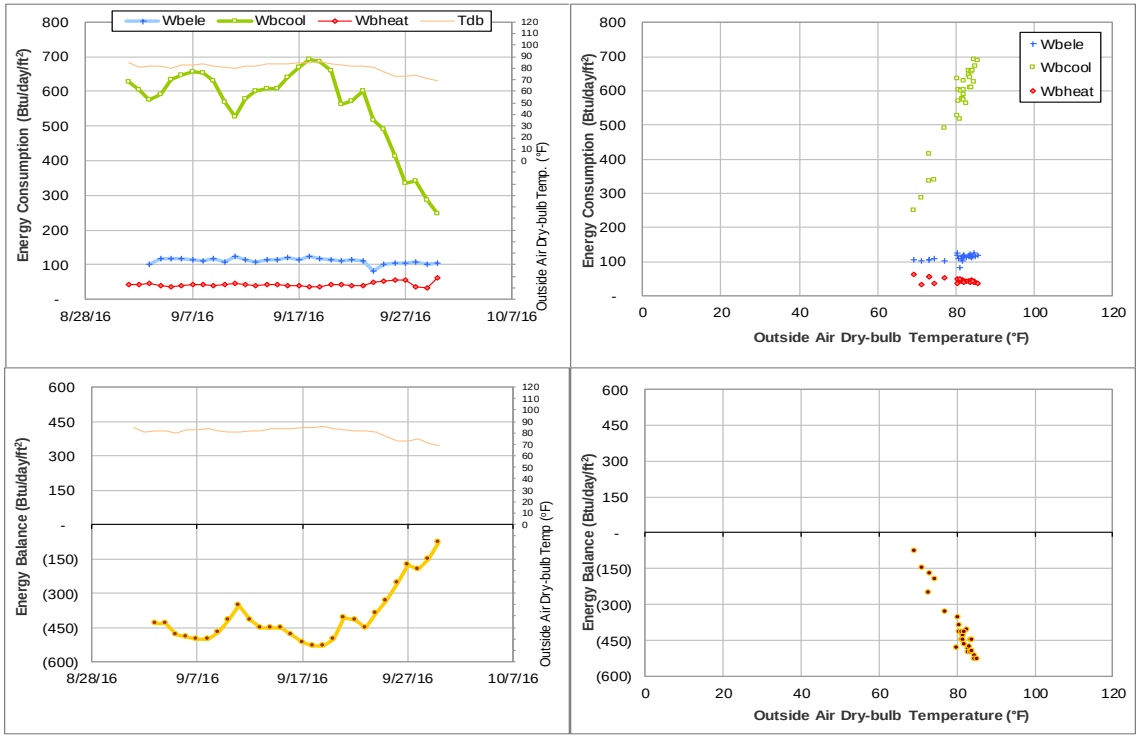


Figure IV-27 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during September 2016

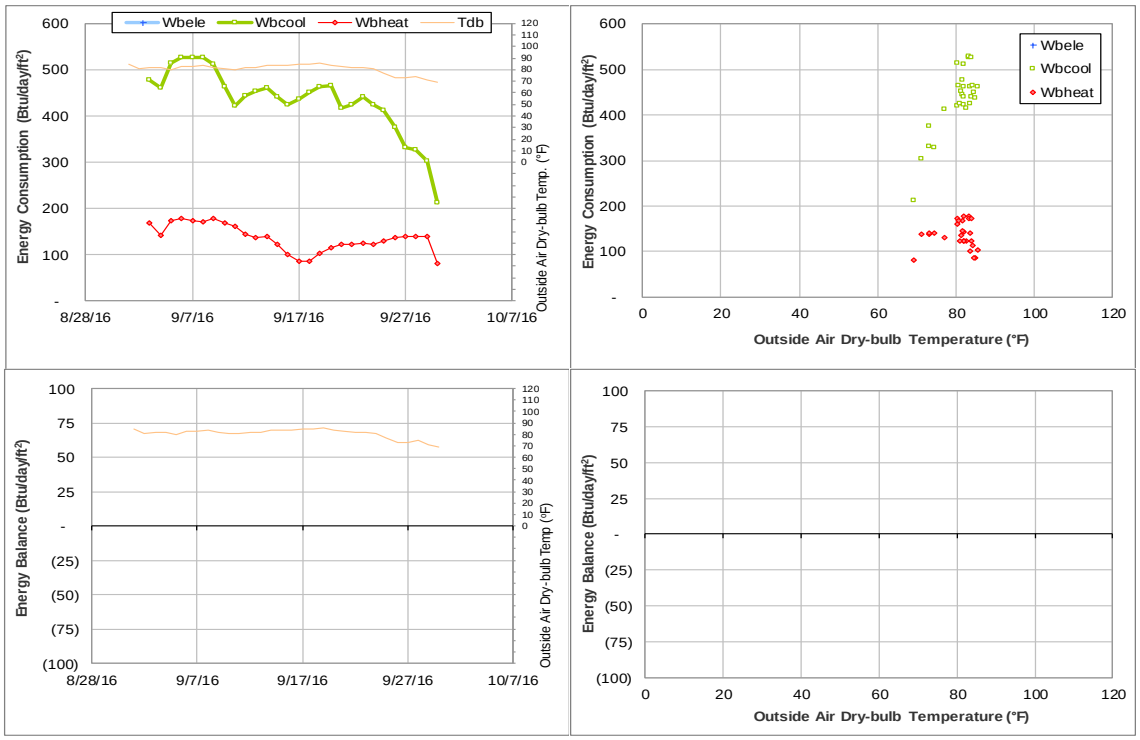


Figure IV-28 Ash II LLC TAMU BLDG # 1405 Energy Balance Plot during September 2016

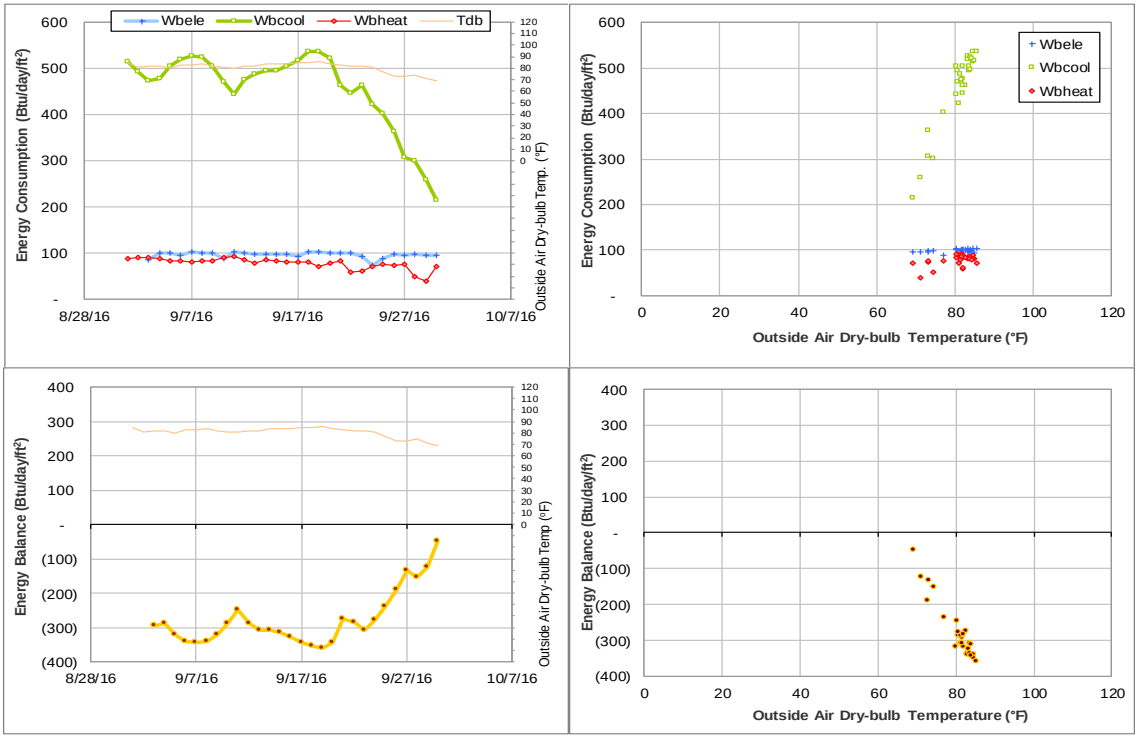


Figure IV-29 Kiest Hall, Fountain Hall, and Plank LLC TAMU BLDG # 401, #403, 1404 Energy Balance Plot during September 2016

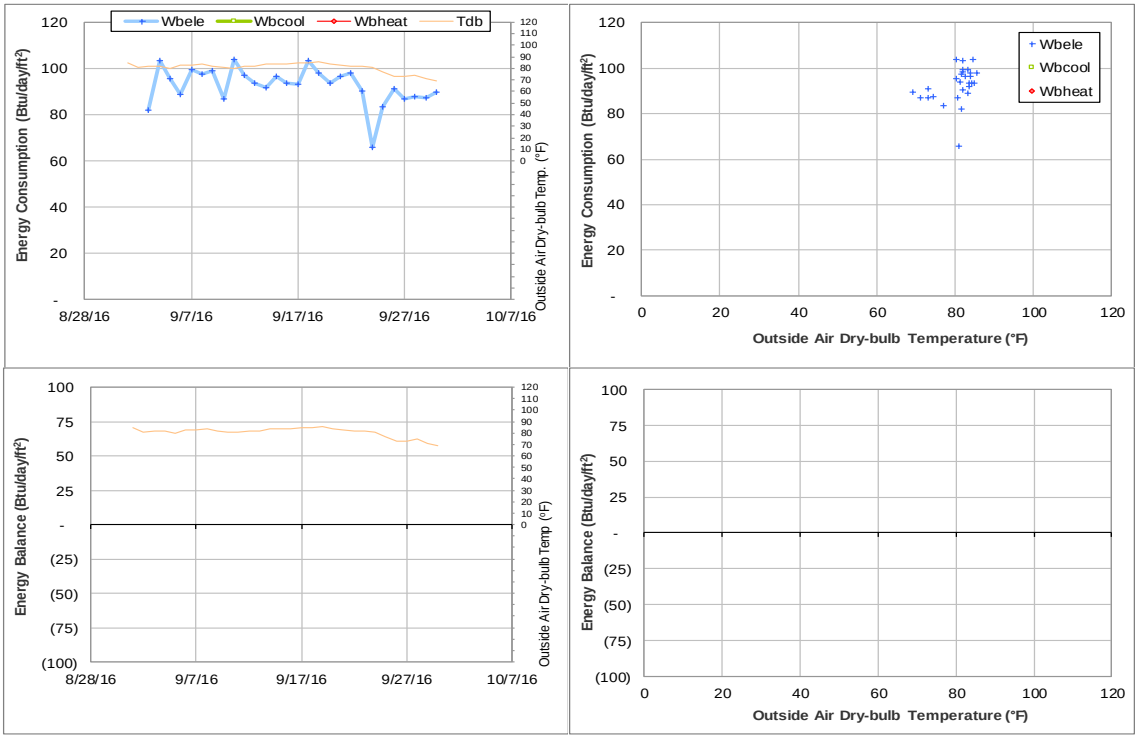


Figure IV-30 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during September 2016

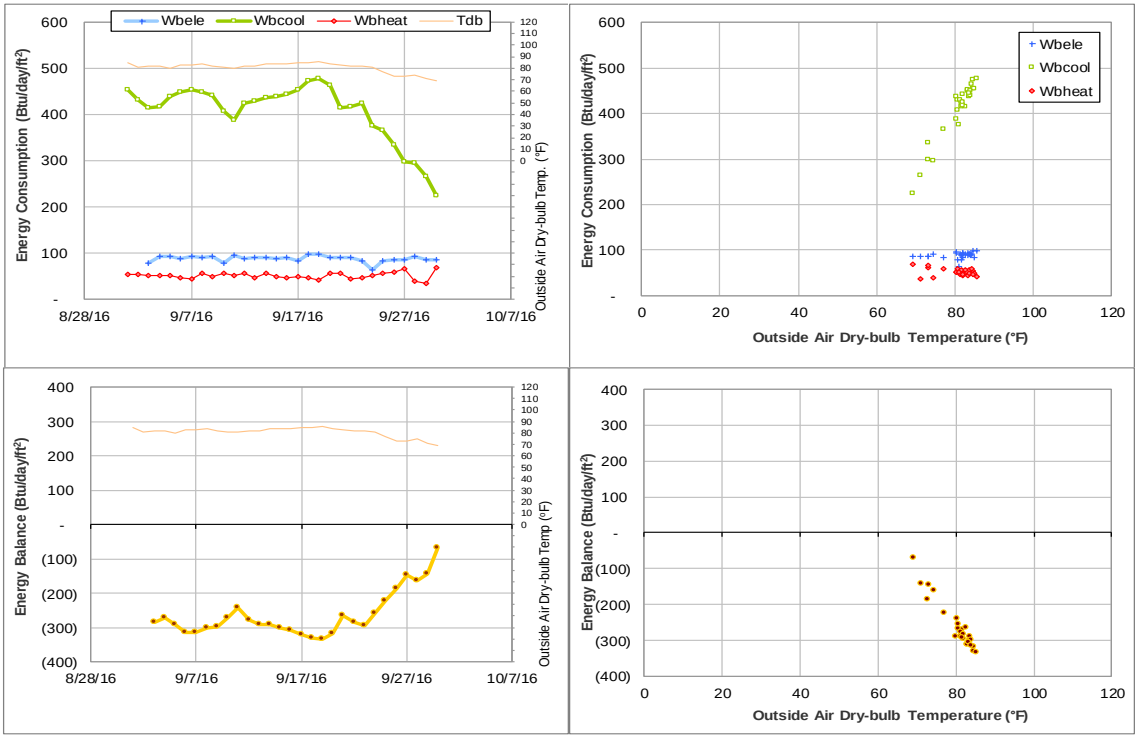


Figure IV-31 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during September 2016

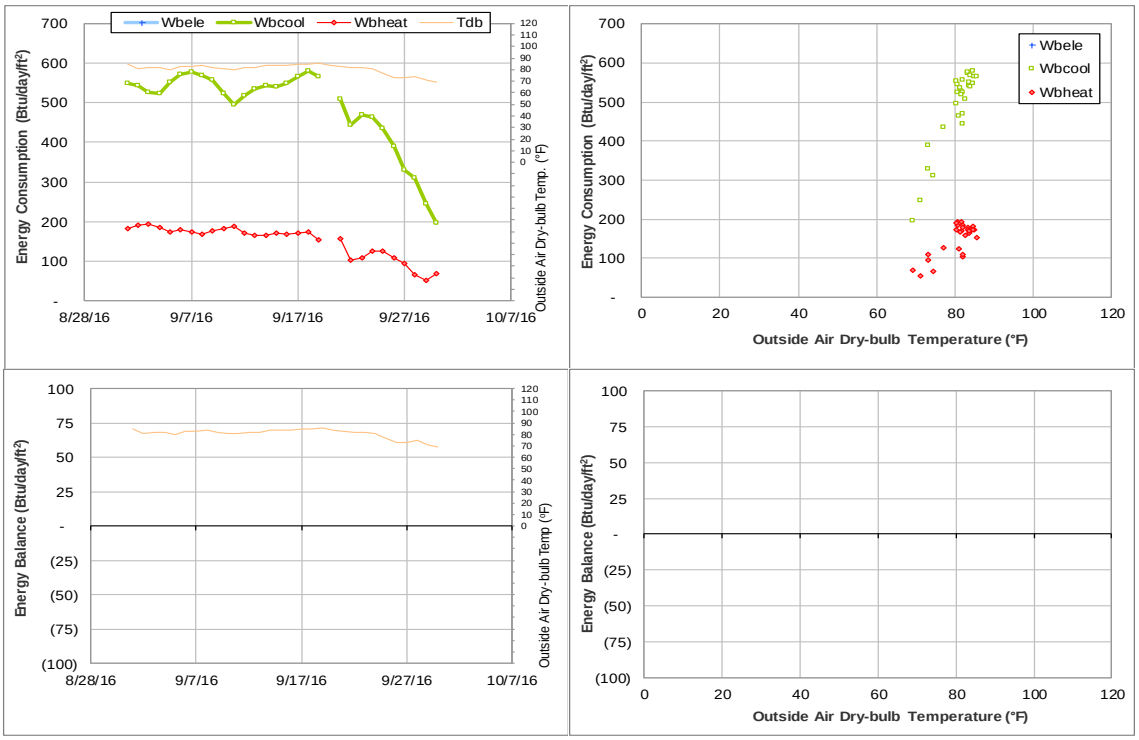


Figure IV-32 Plank LLC TAMU BLDG # 1404 Energy Balance Plot during September 2016

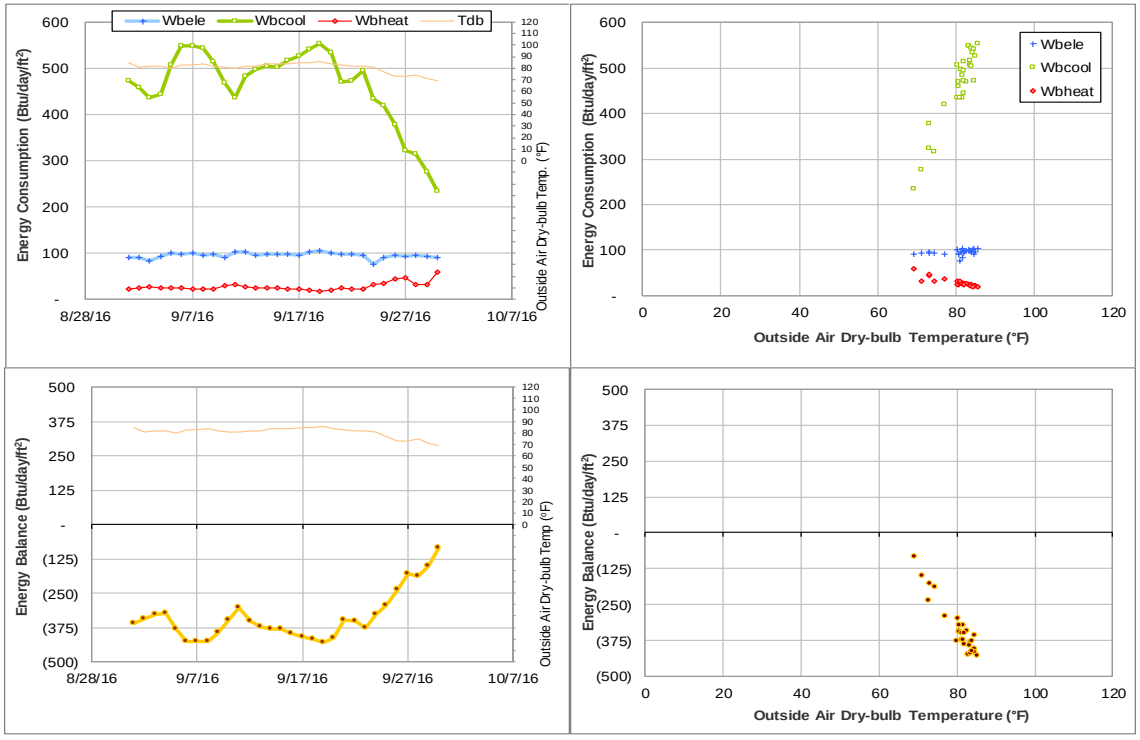


Figure IV-33 Gainer Hall, Leonard Hall and Ash LLC TAMU BLDG # 404, #406, #1403 Energy Balance Plot during September 2016

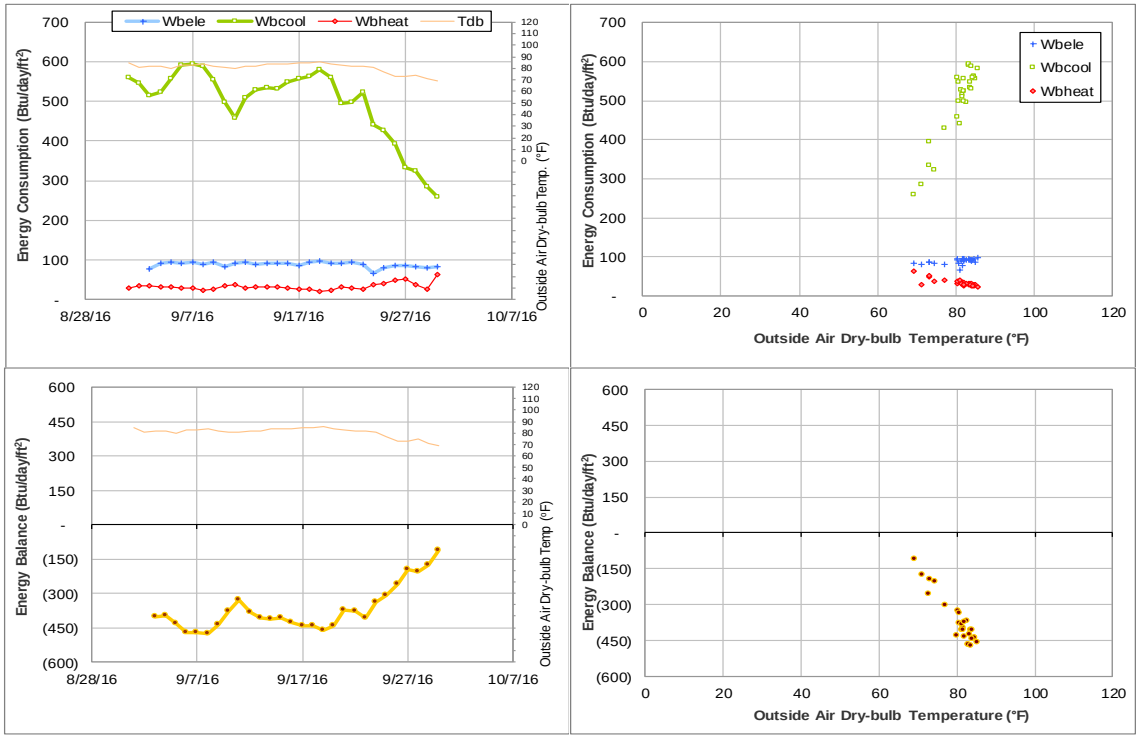


Figure IV-34 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during September 2016

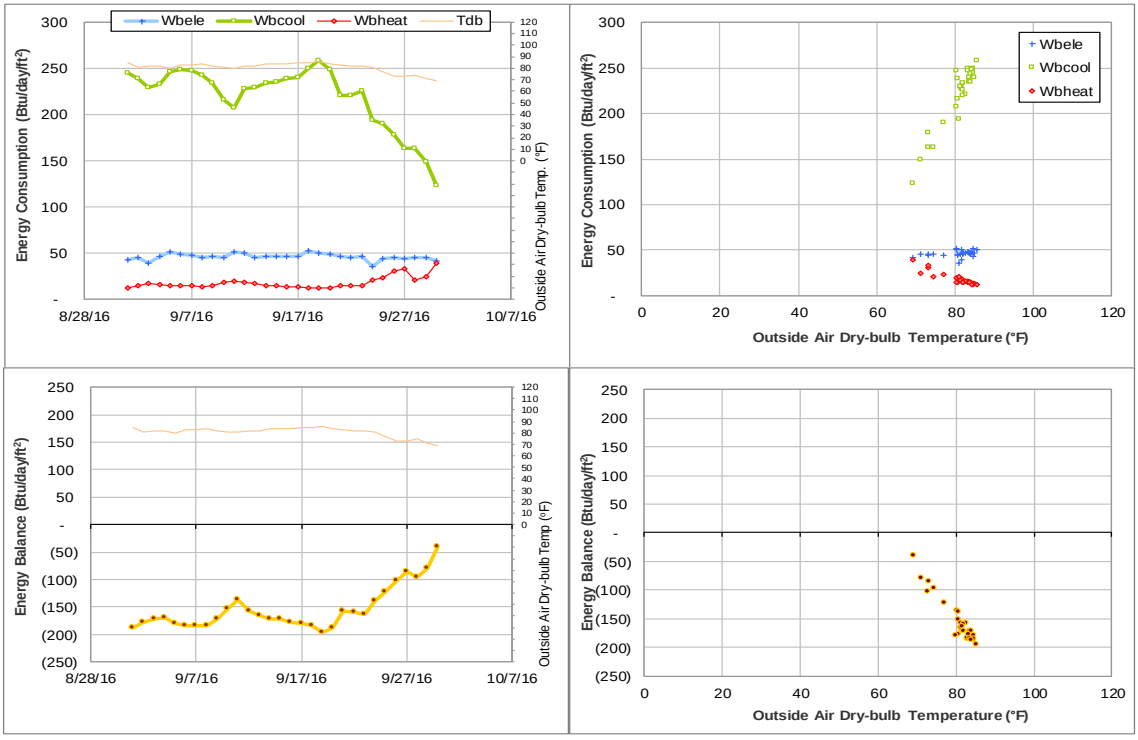


Figure IV-35 Leonard Hall - Dorm 7 TAMU BLDG # 406 Energy Balance Plot during September 2016

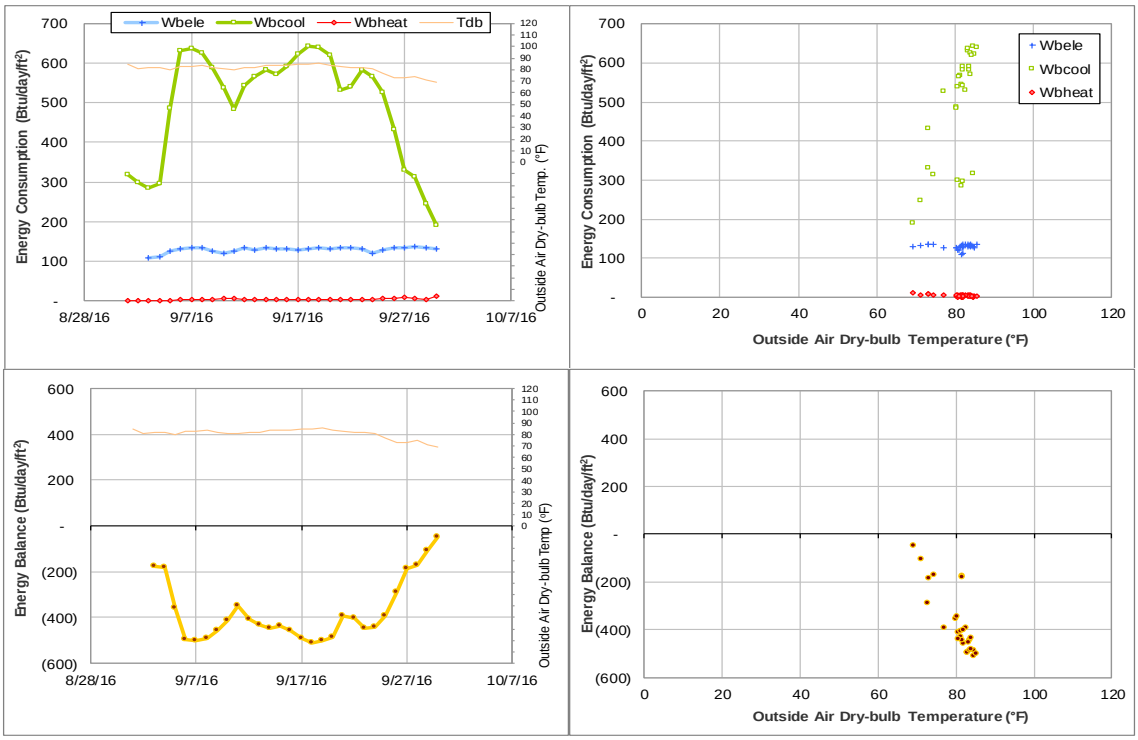


Figure IV-36 H. Grady Ash, Jr. '58 Leadership Learning Center TAMU BLDG # 1403 Energy Balance Plot during September 2016

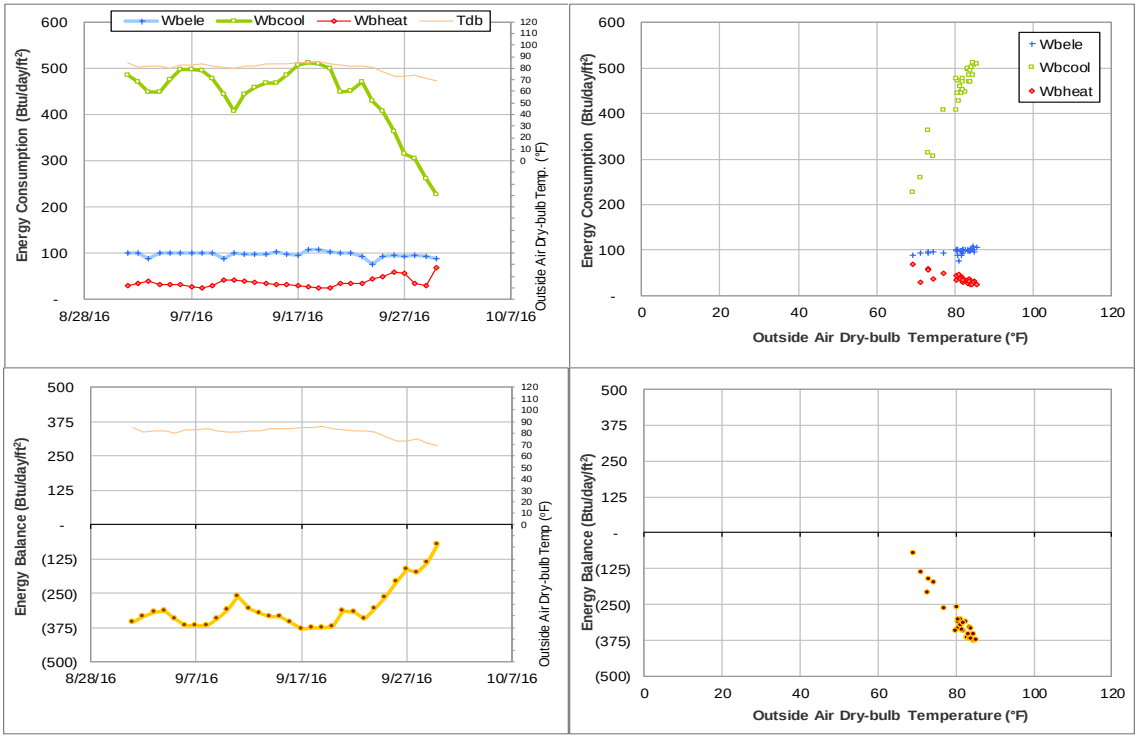


Figure IV-37 Lacy Hall - Dorm 6, Harrell Hall and Leadership Learning Center TAMU BLDG # 405, #407, #1402 Energy Balance Plot during September 2016

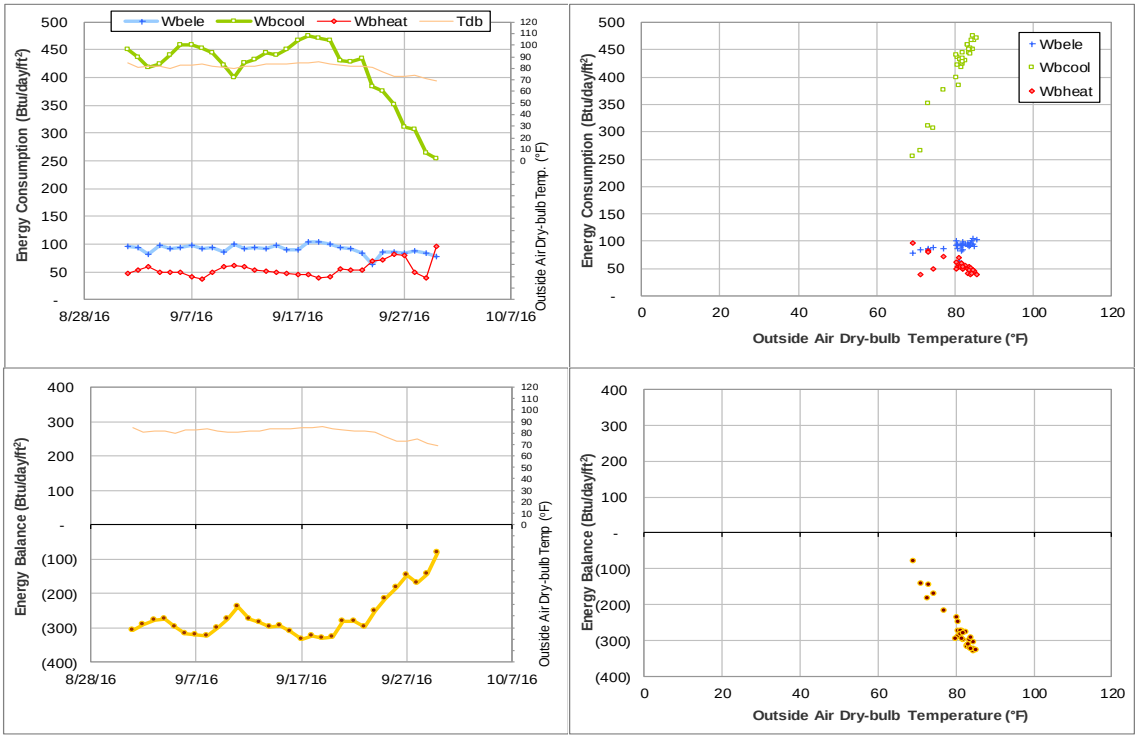


Figure IV-38 Lacy Hall - Dorm 6 TAMU BLDG # 405 Energy Balance Plot during September 2016

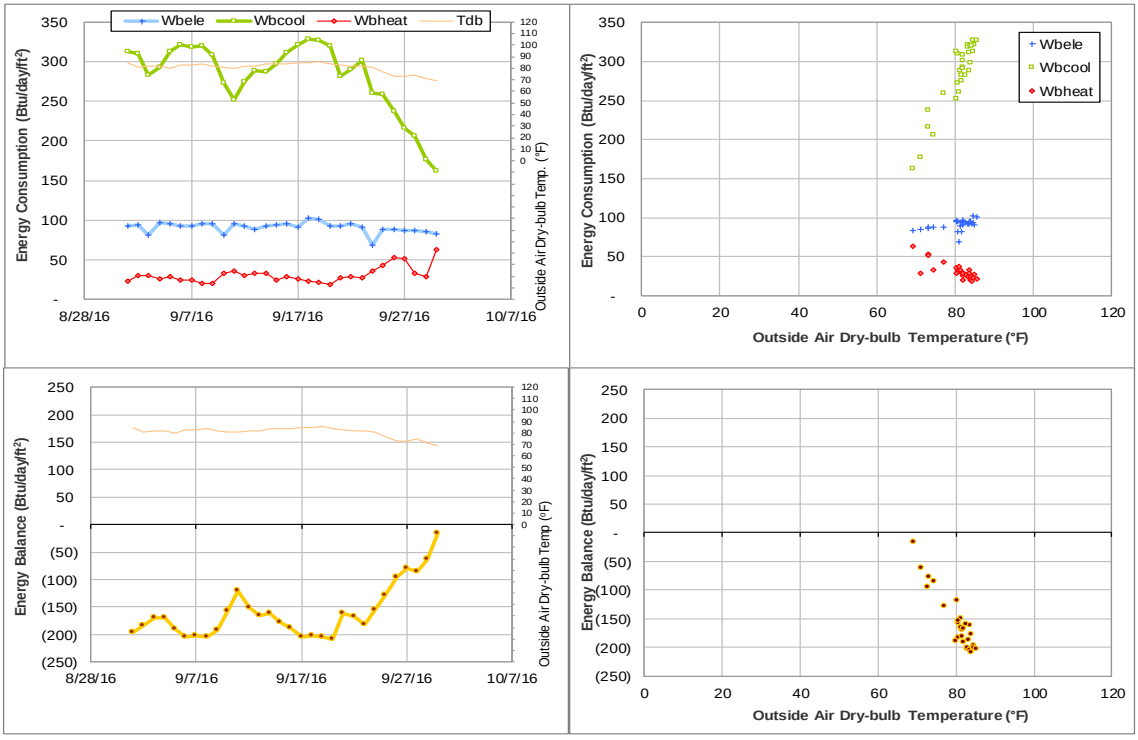


Figure IV-39 Harrell Hall - Dorm 8 TAMU BLDG # 407 Energy Balance Plot during September 2016

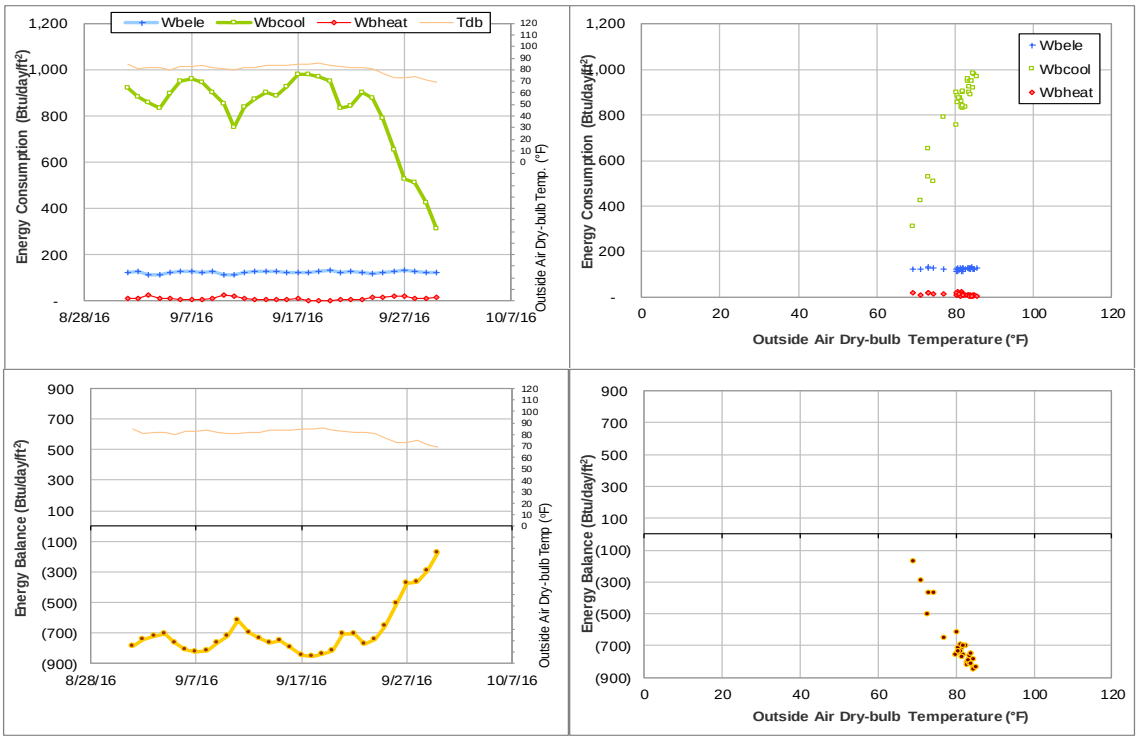


Figure IV-40 Buzbee Leadership Learning Center TAMU BLDG # 1402 Energy Balance Plot during September 2016

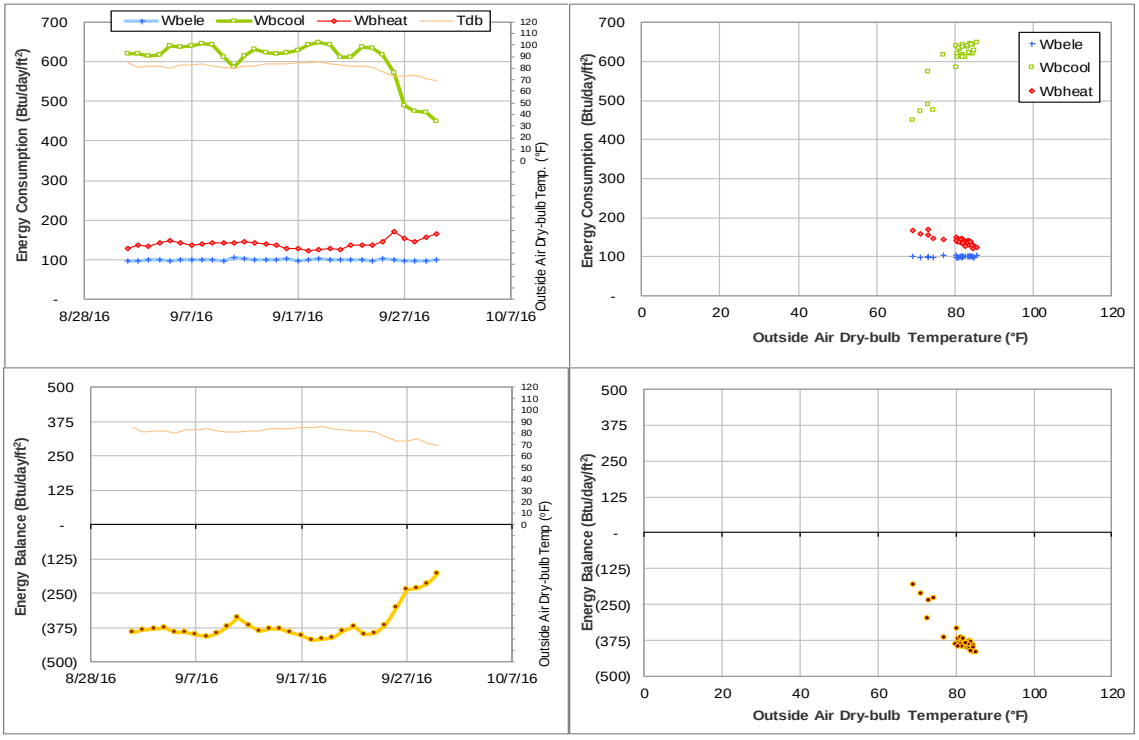


Figure IV-41 Moses Residence Hall TAMU BLDG # 412 Energy Balance Plot during September 2016

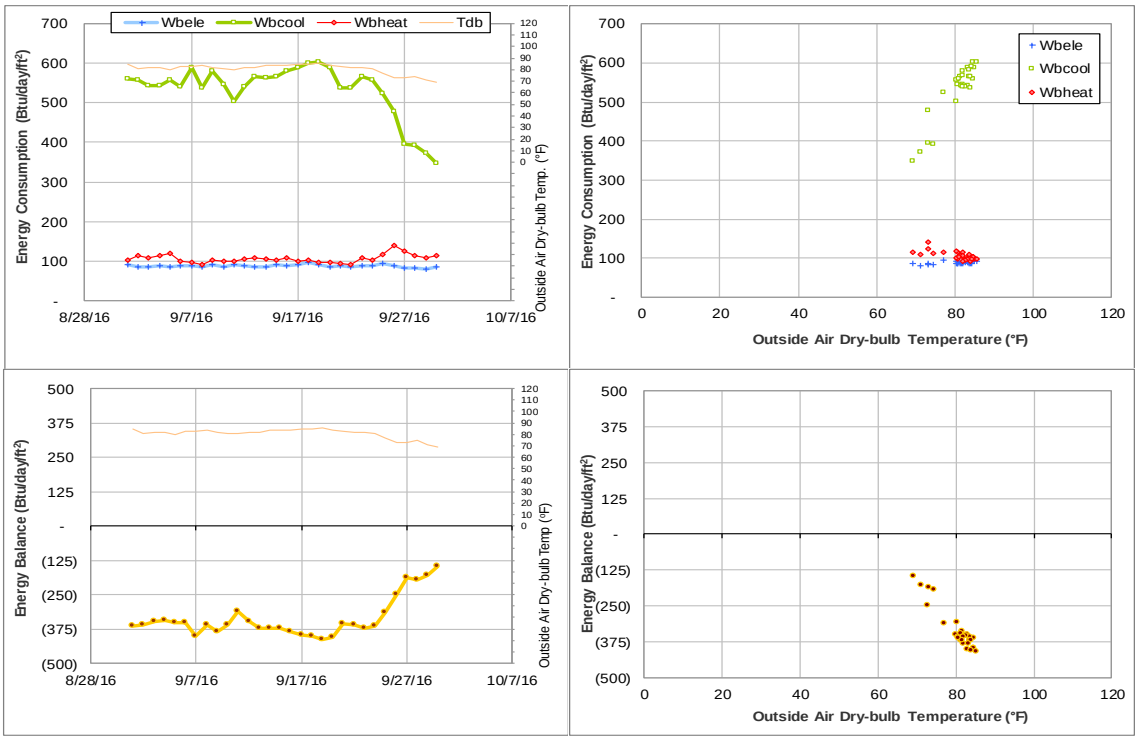


Figure IV-42 Davis-Gary Residence Hall TAMU BLDG # 415 Energy Balance Plot during September 2016

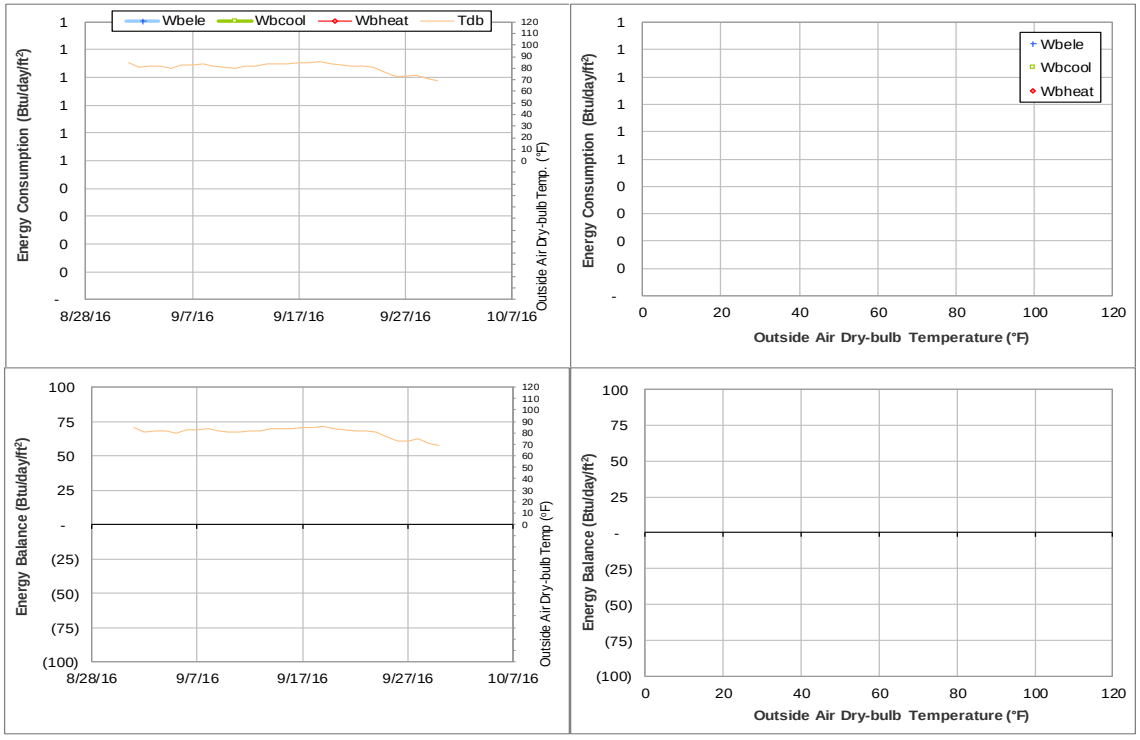


Figure IV-43 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during September 2016

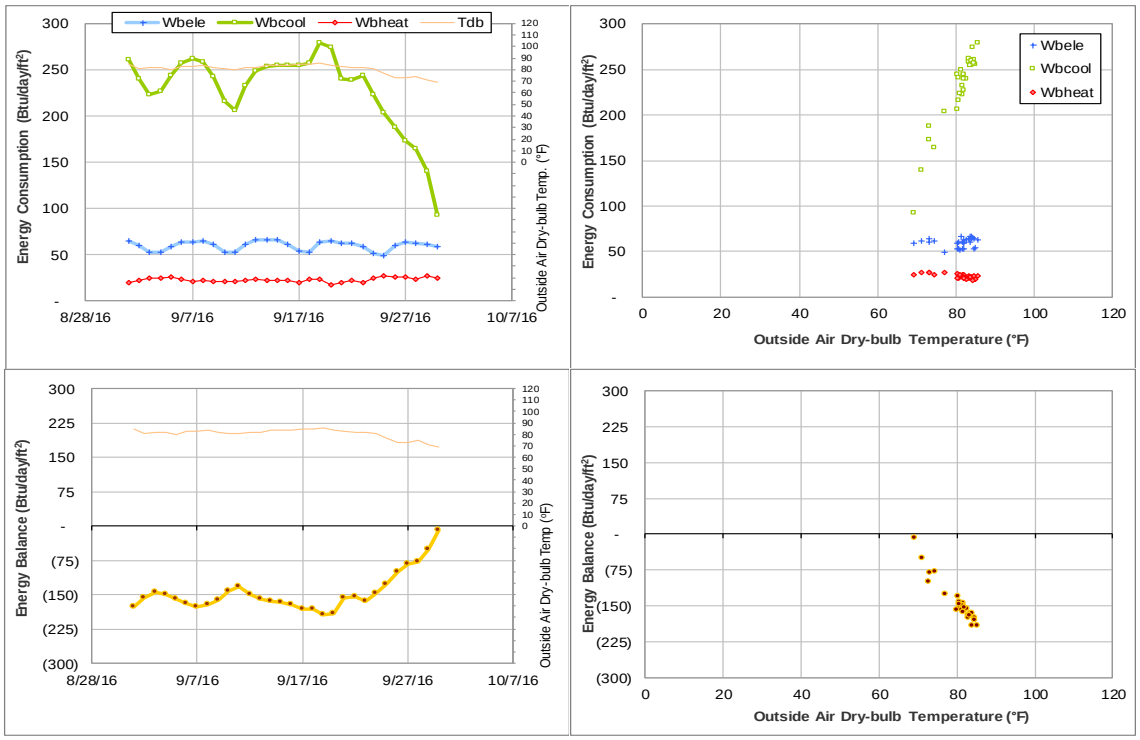


Figure IV-44 Milner Hall TAMU BLDG # 420 Energy Balance Plot during September 2016

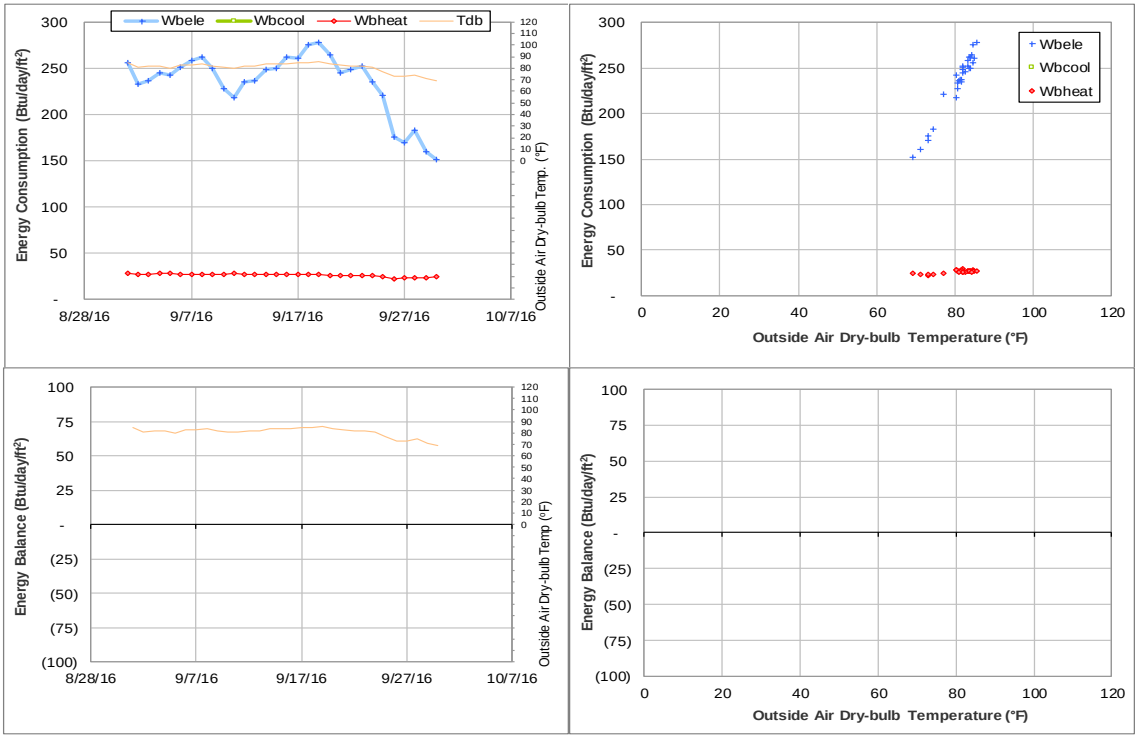


Figure IV-45 Walton Residence Hall TAMU BLDG # 422 Energy Balance Plot during September 2016

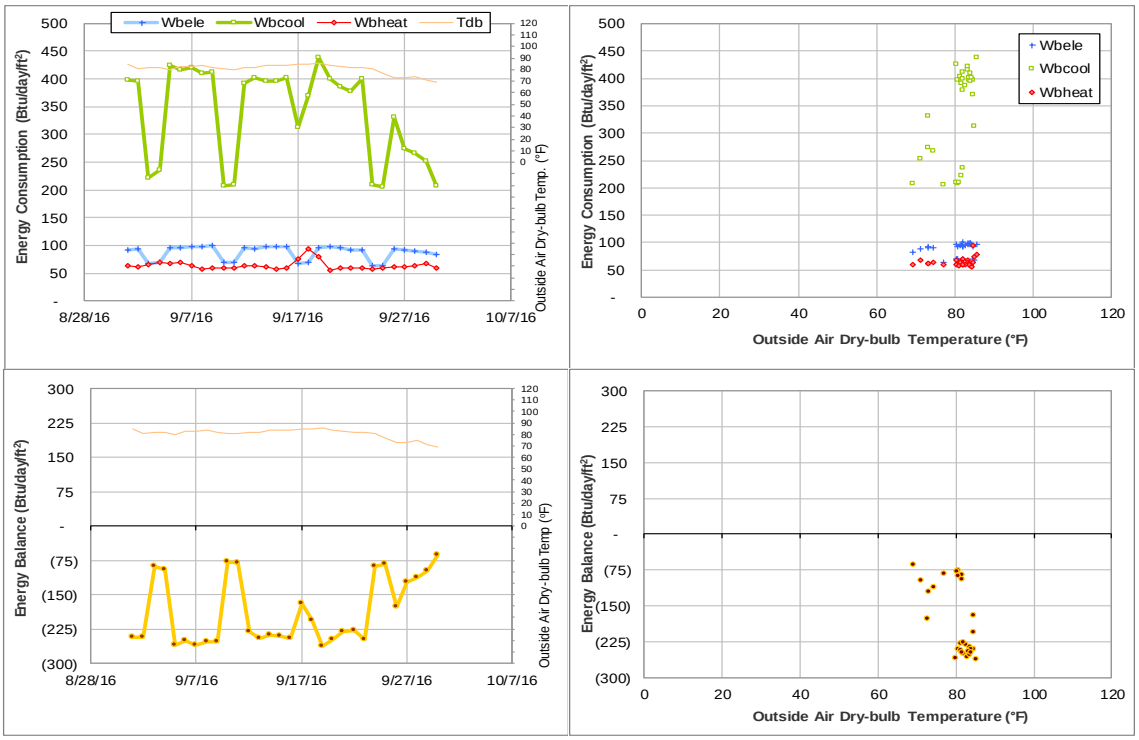


Figure IV-46 Hotard Hall TAMU BLDG # 424 Energy Balance Plot during September 2016

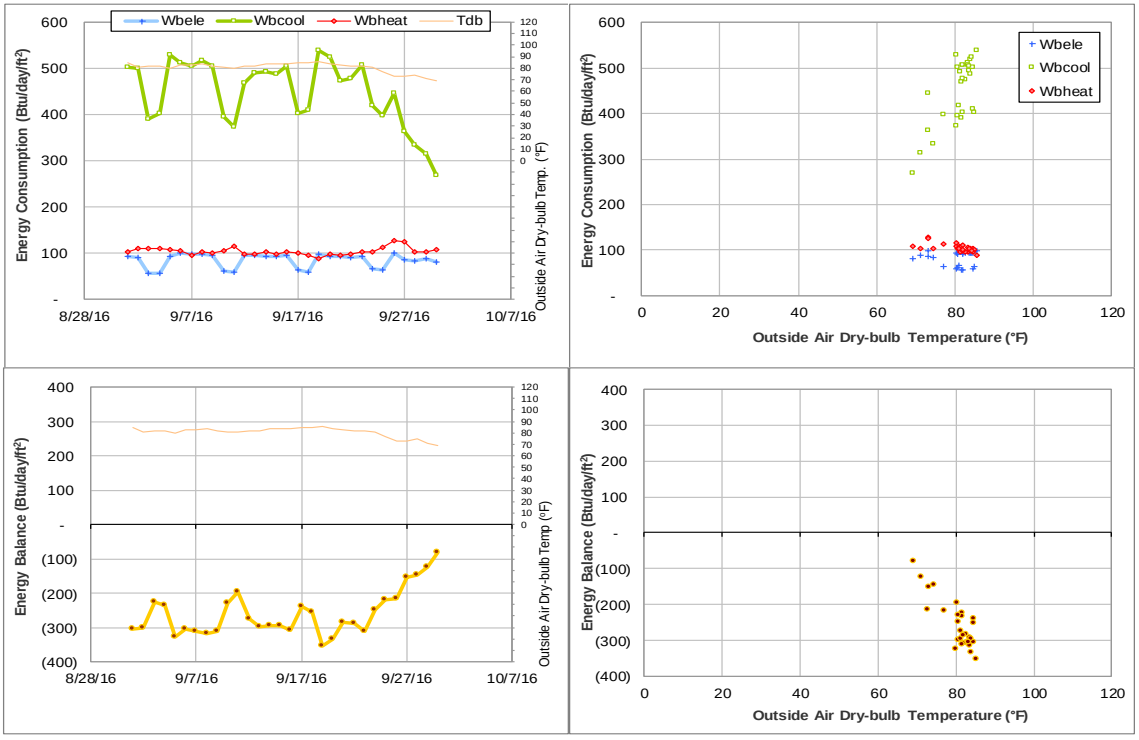


Figure IV-47 Henderson Hall TAMU BLDG # 425 Energy Balance Plot during September 2016

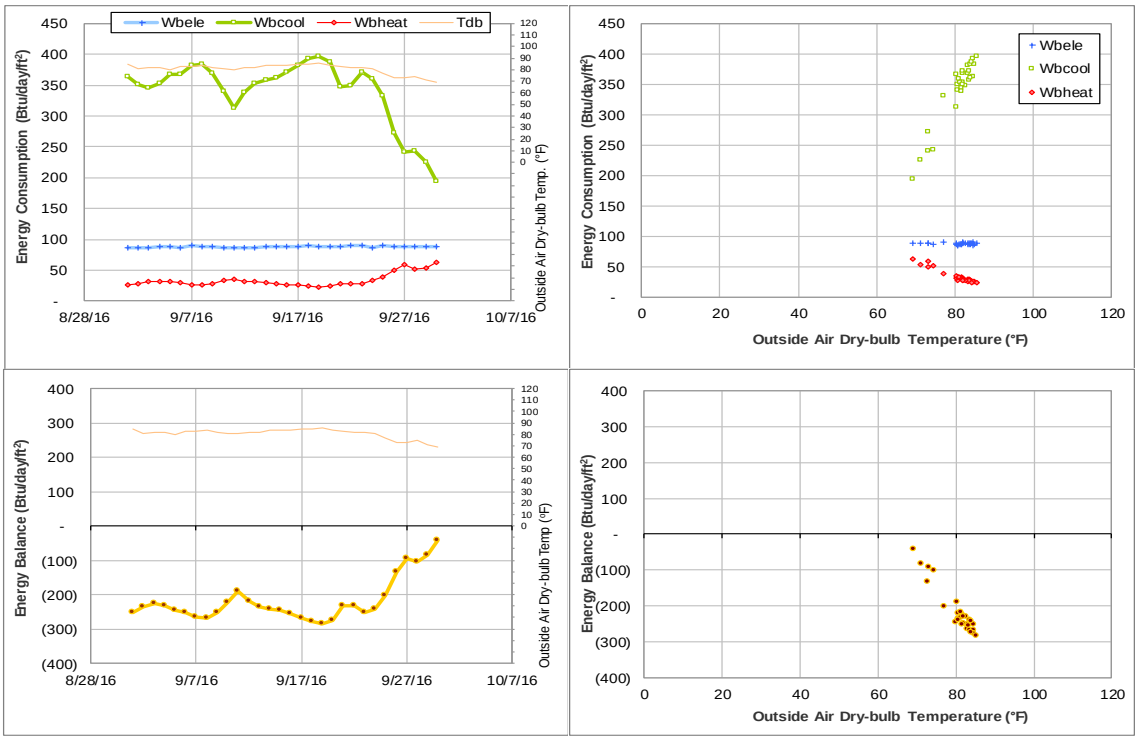


Figure IV-48 FHK Complex TAMU BLDG # 426 Energy Balance Plot during September 2016

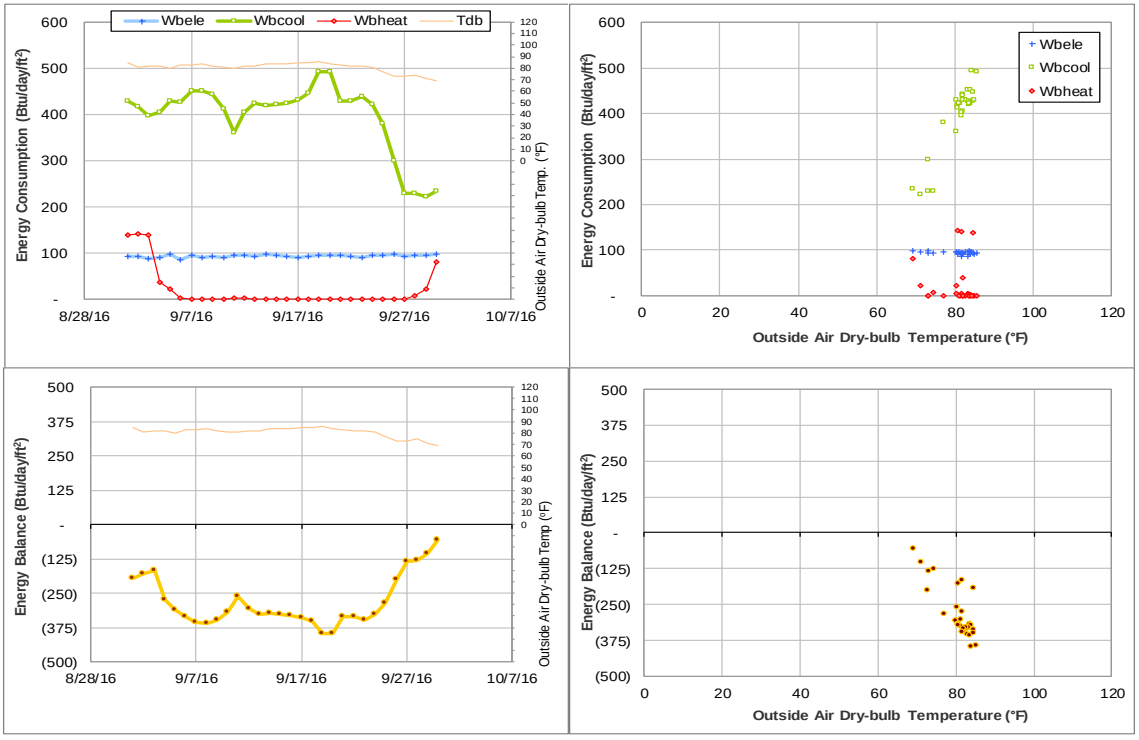


Figure IV-49 Schumacher Residence Hall TAMU BLDG # 430 Energy Balance Plot during September 2016

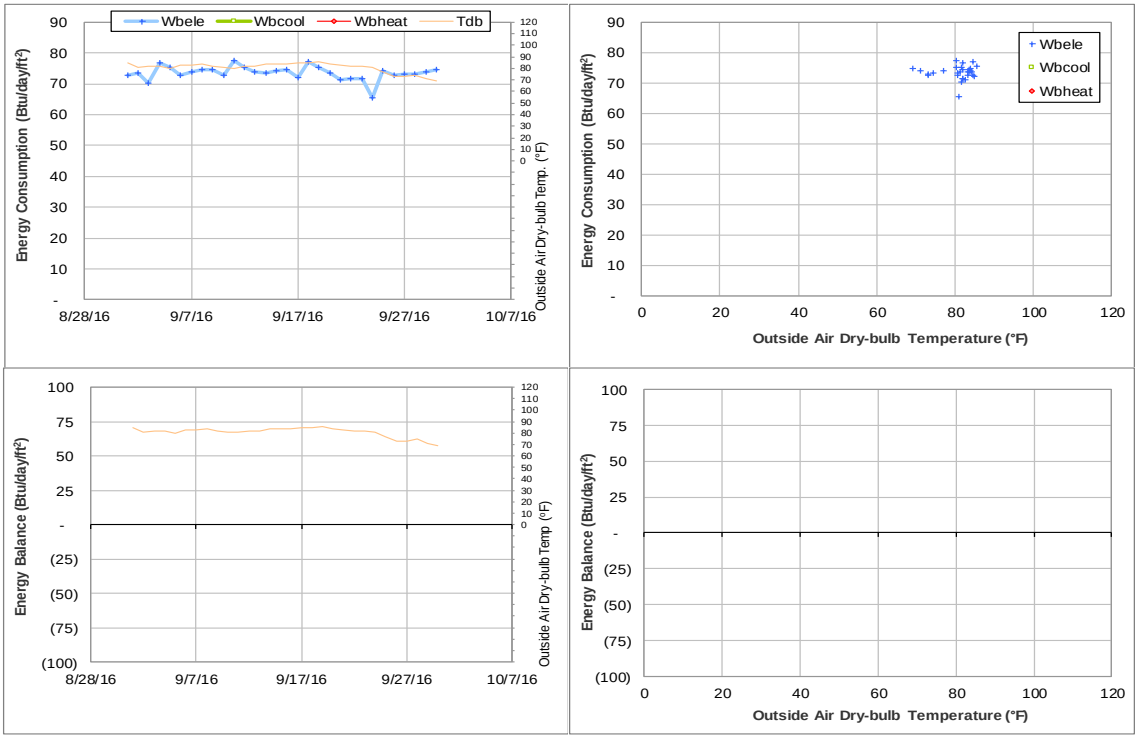


Figure IV-50 Mosher Commons Krueger Dunn Aston TAMU BLDG # 433, #440, #441, #442, #447 Energy Balance Plot during September 2016

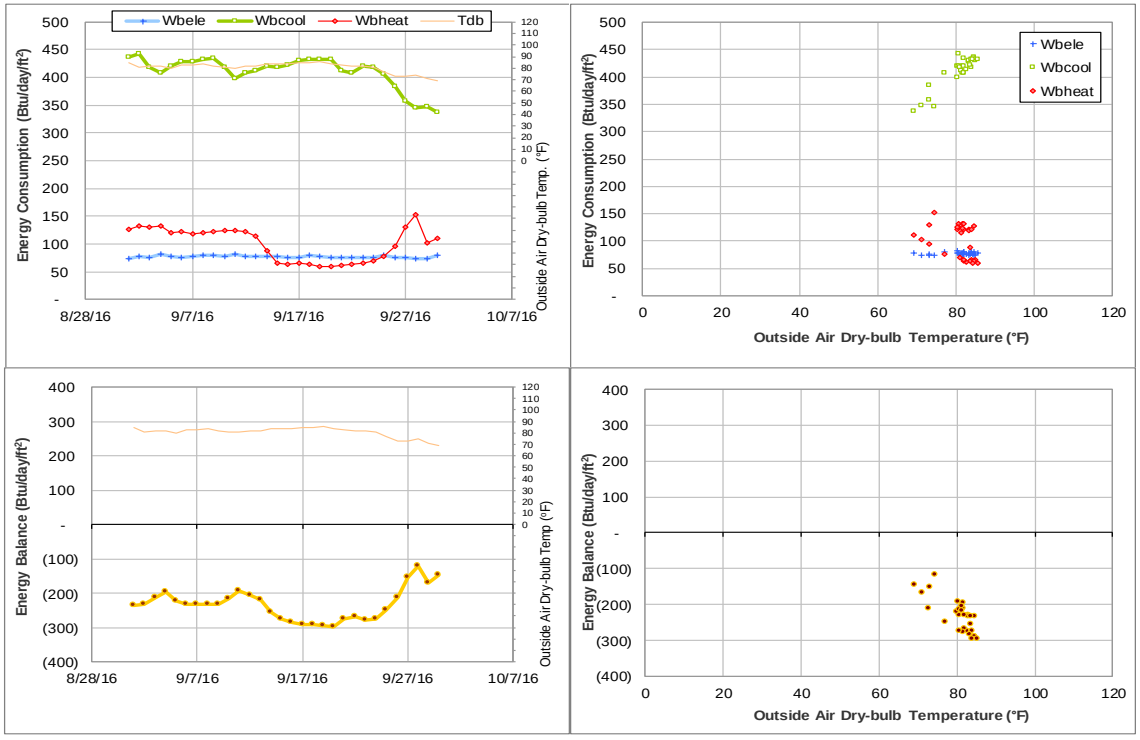


Figure IV-51 Mosher Residence Hall TAMU BLDG # 433 Energy Balance Plot during September 2016

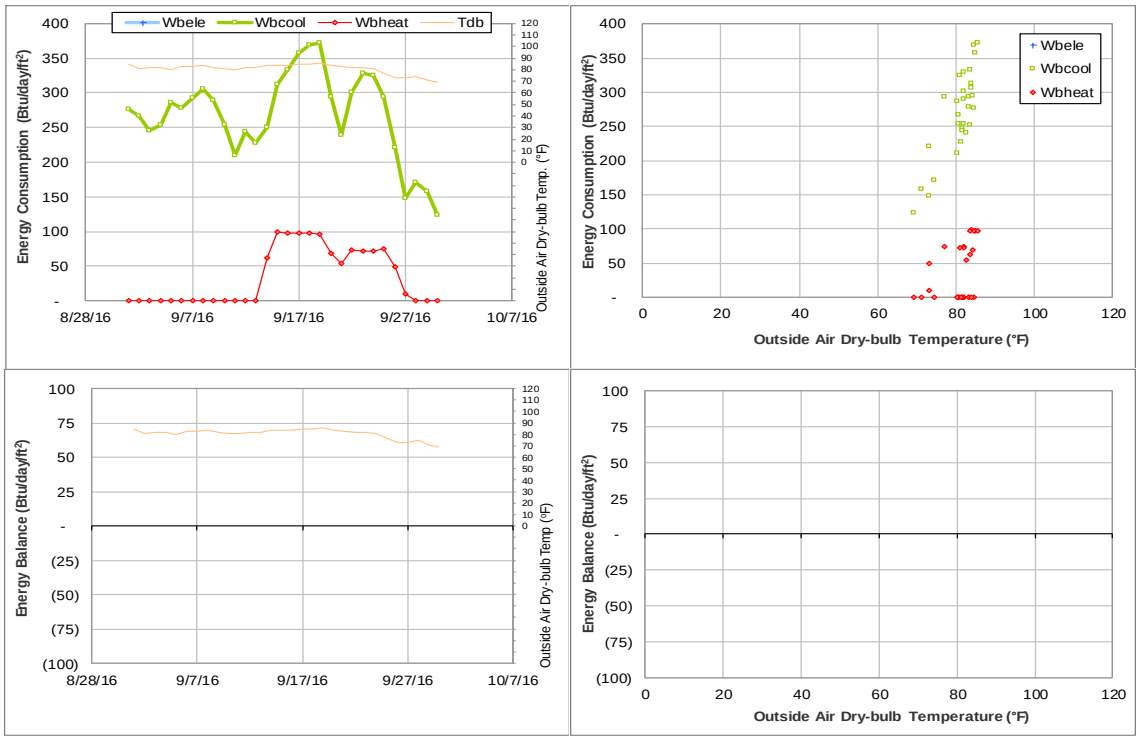


Figure IV-52 Commons Hall TAMU BLDG # 440 Energy Balance Plot during September 2016

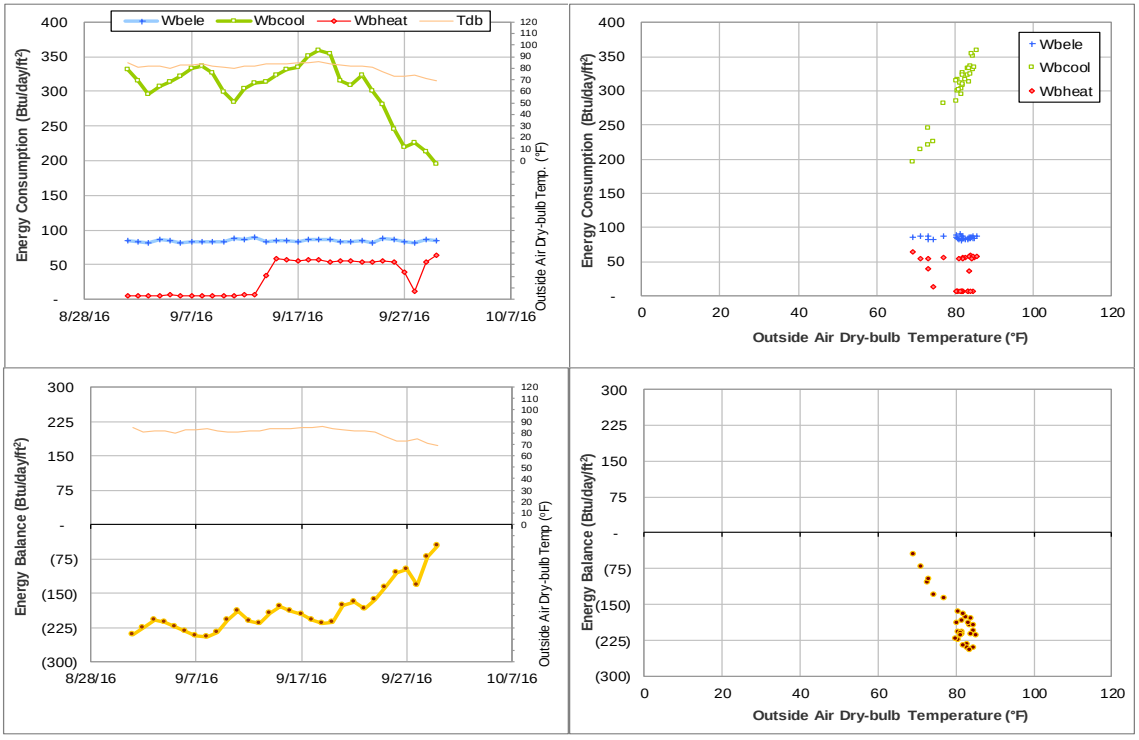


Figure IV-53 Krueger Residence Hall TAMU BLDG # 441 Energy Balance Plot during September 2016

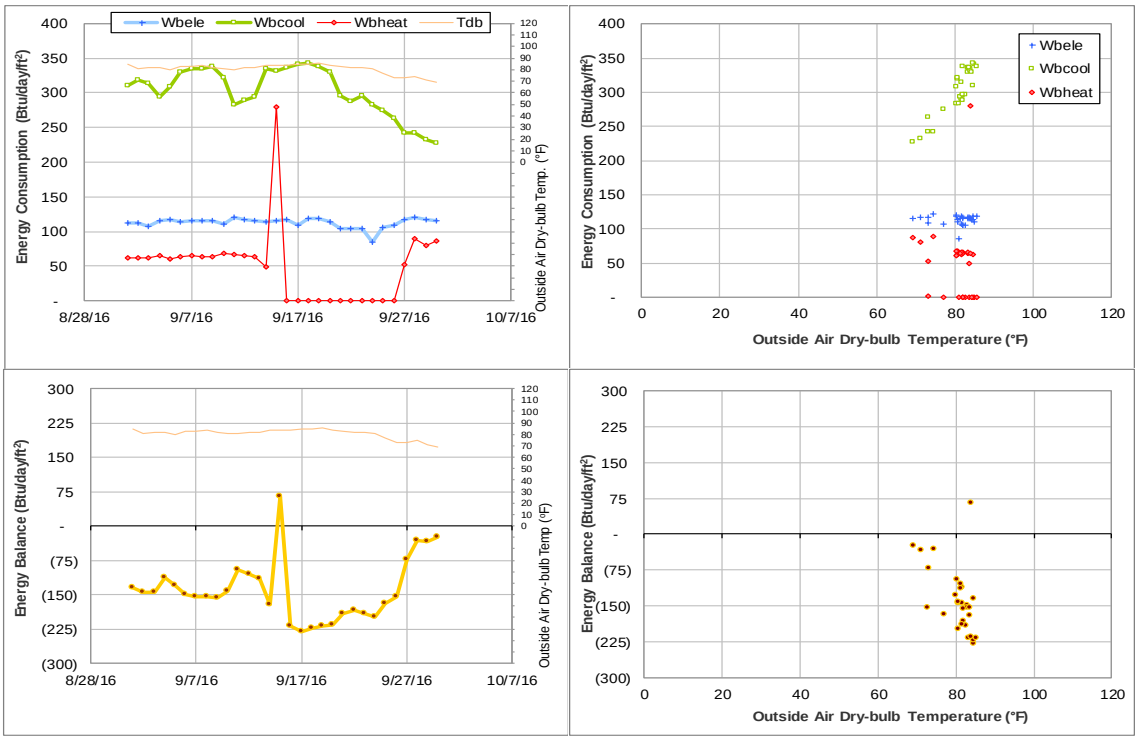


Figure IV-54 Dunn Residence Hall TAMU BLDG # 442 Energy Balance Plot during September 2016

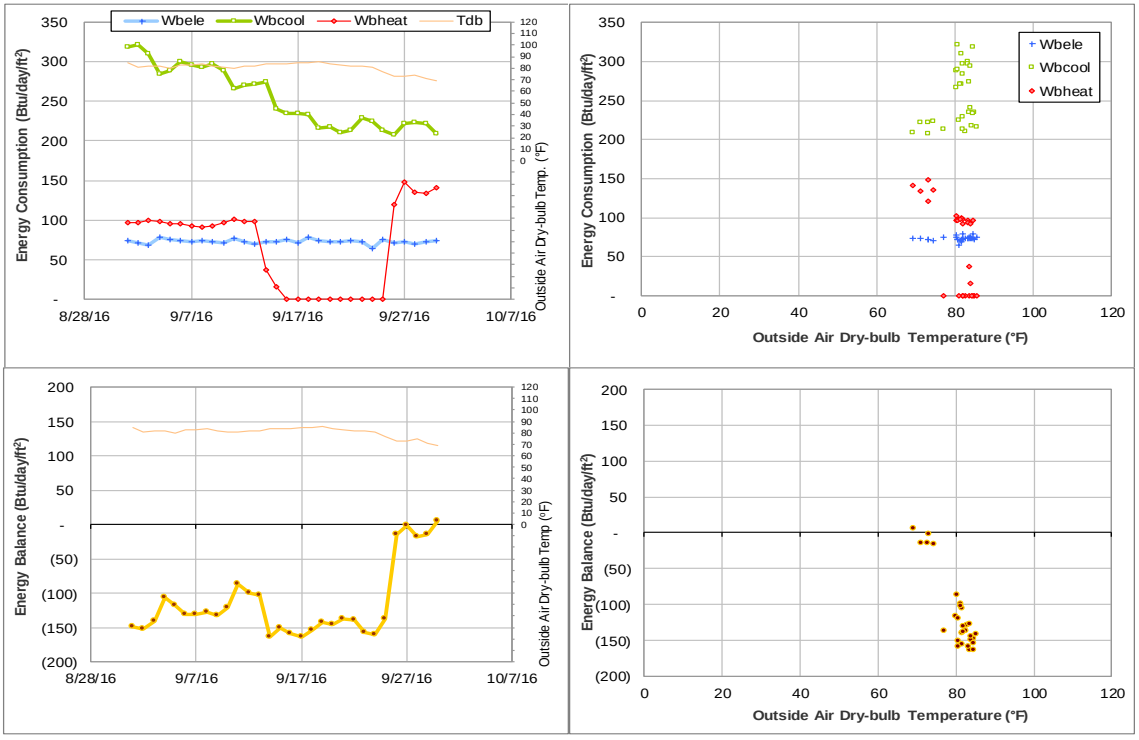


Figure IV-55 Aston Residence Hall TAMU BLDG # 447 Energy Balance Plot during September 2016

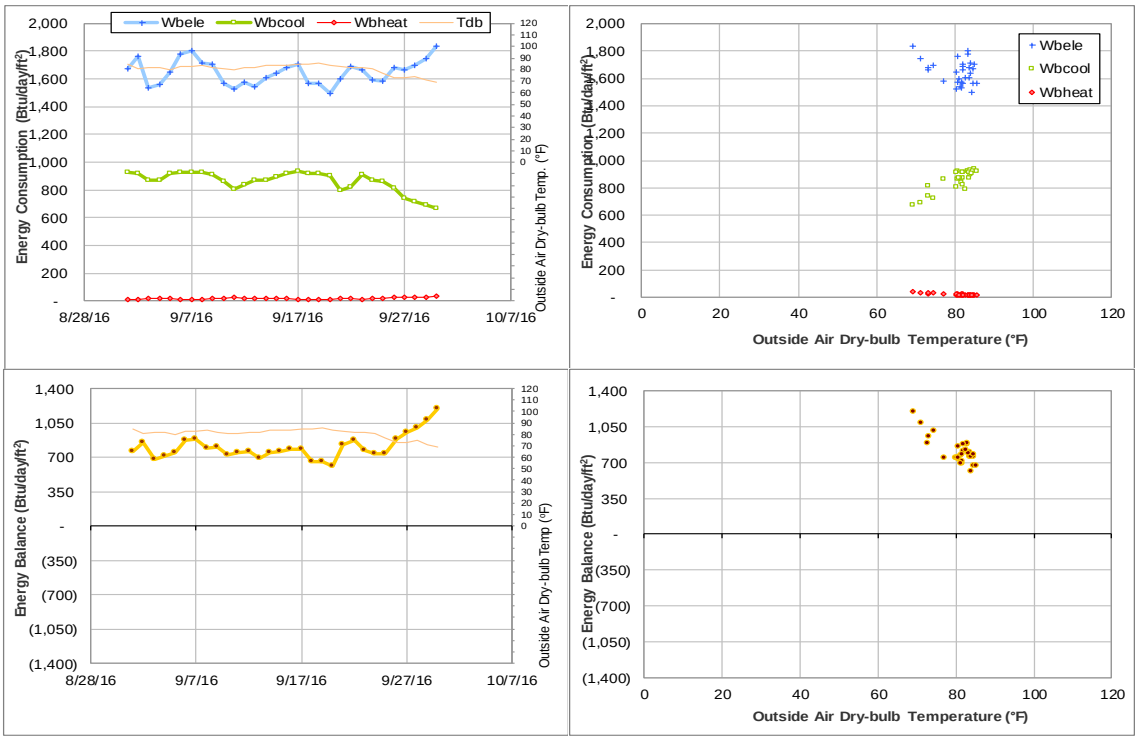


Figure IV-56 Luedecke Building (Cyclotron) TAMU BLDG # 434 Energy Balance Plot during September 2016

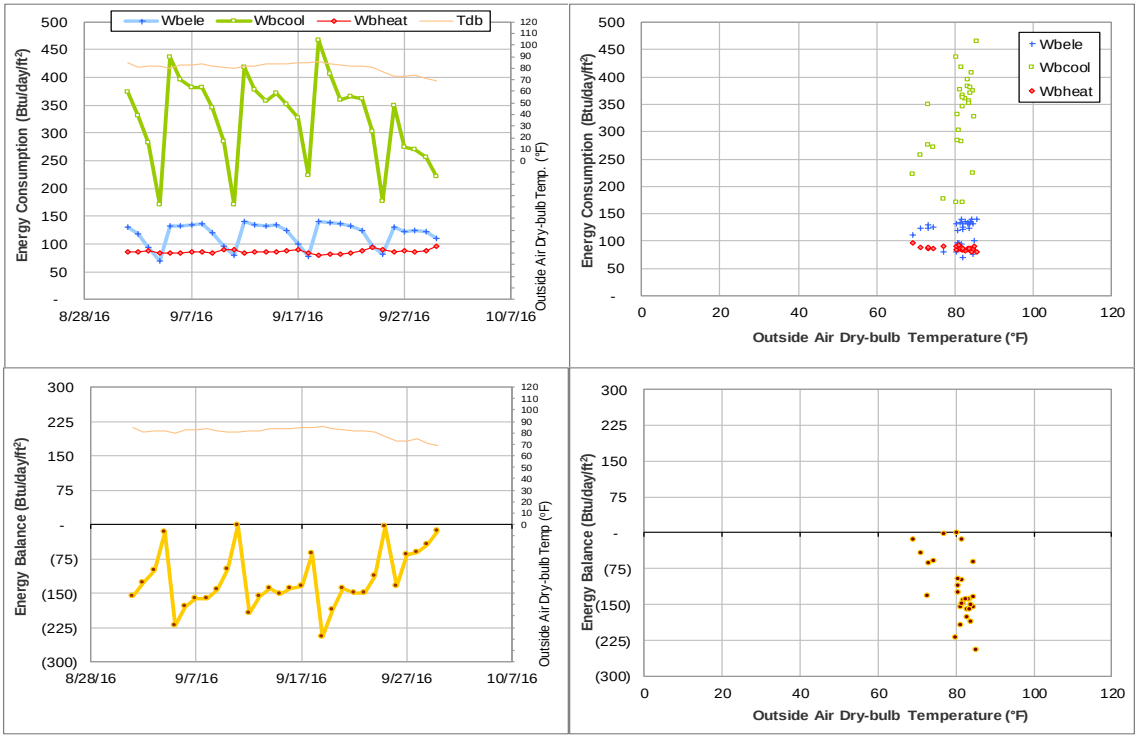


Figure IV-57 Harrington Education Center Office Tower TAMU BLDG # 435 Energy Balance Plot during September 2016

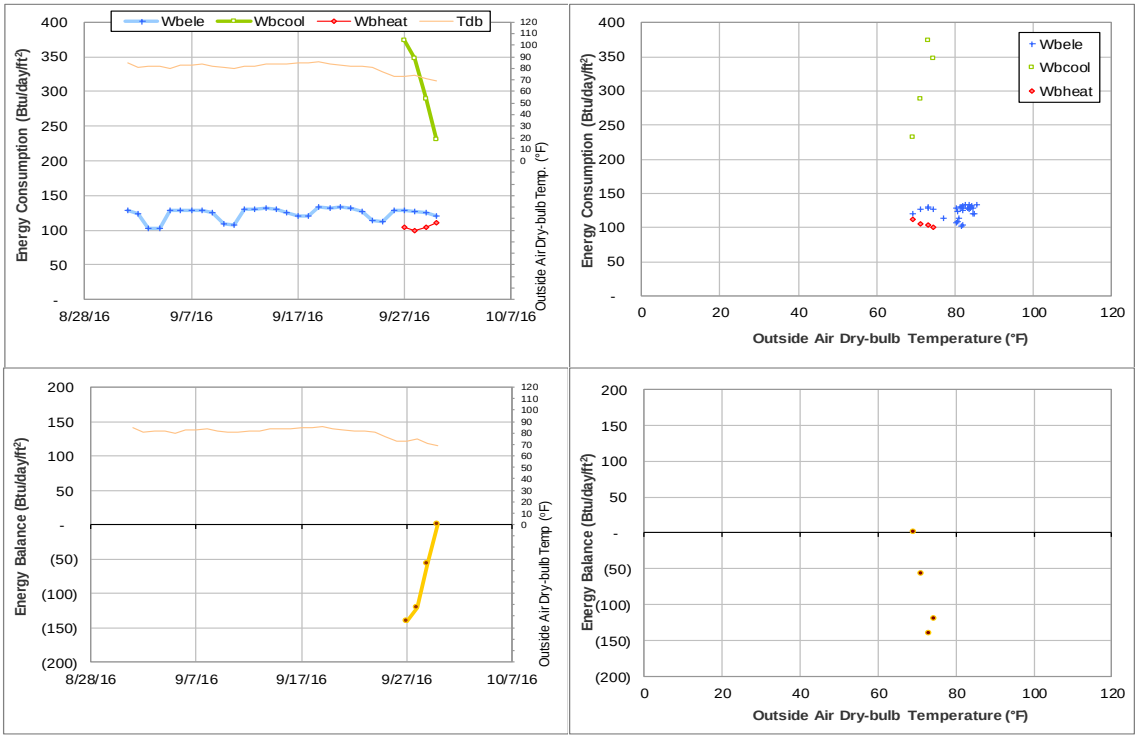


Figure IV-58 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 and #499 Energy Balance Plot during September 2016

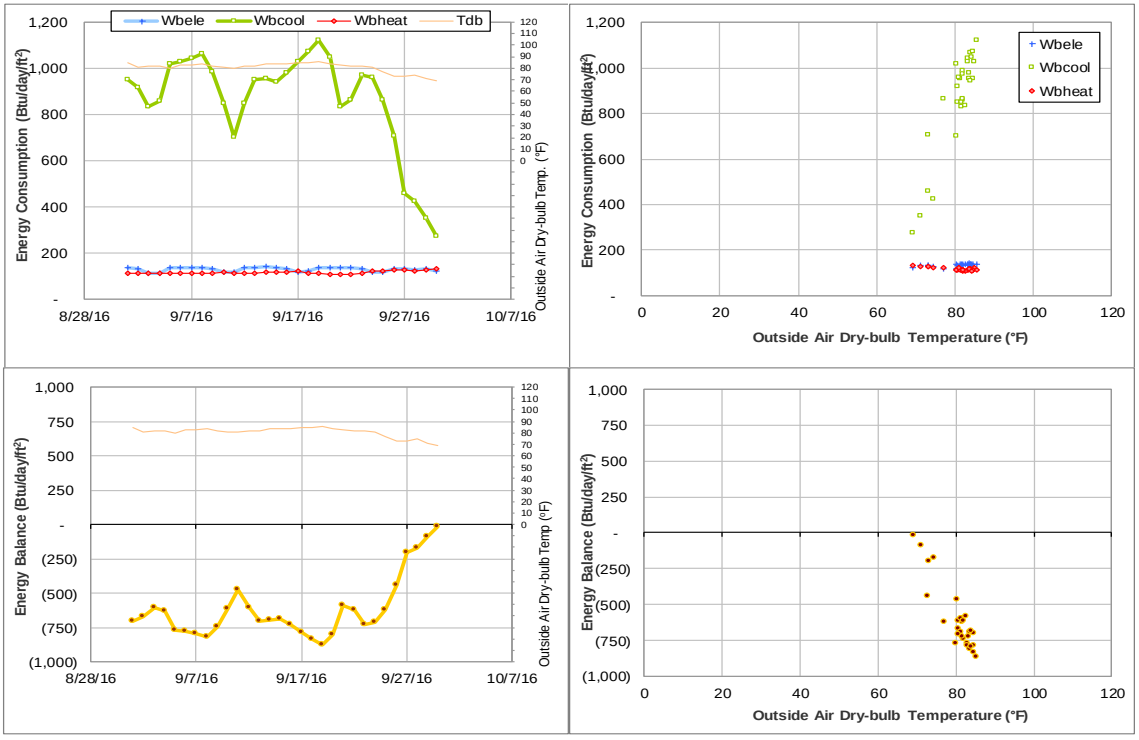


Figure IV-59 Reed-McDonald Building TAMU BLDG # 436 Energy Balance Plot during September 2016

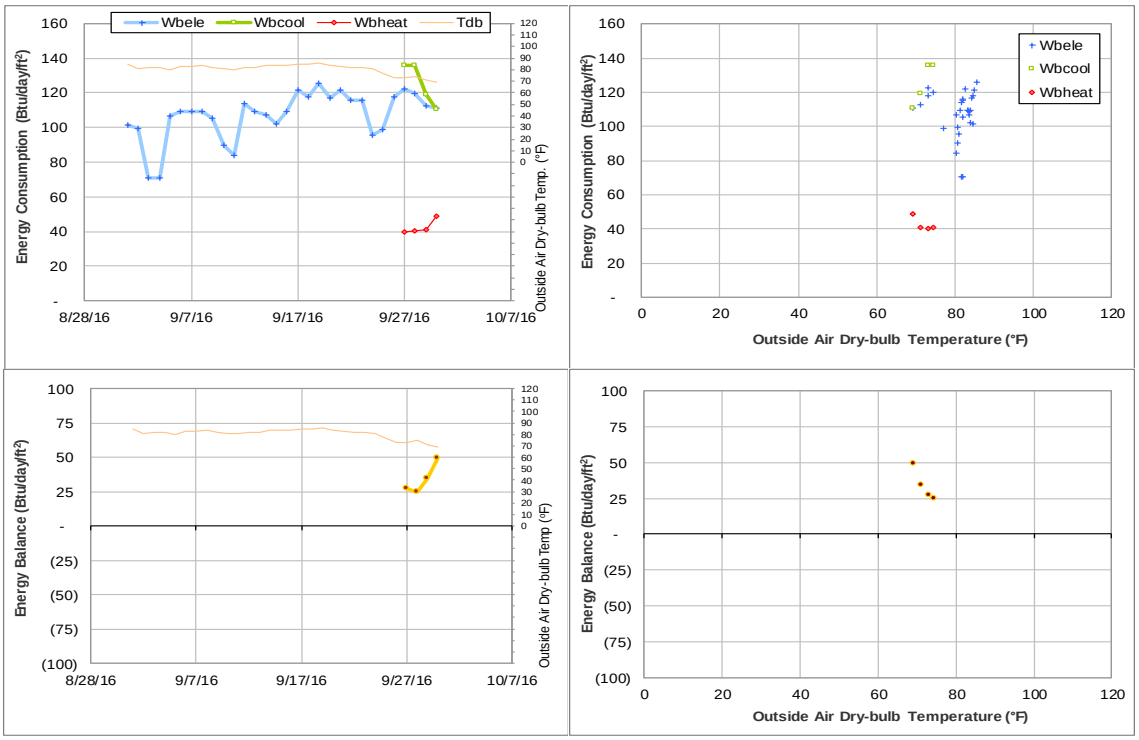


Figure IV-60 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during September 2016

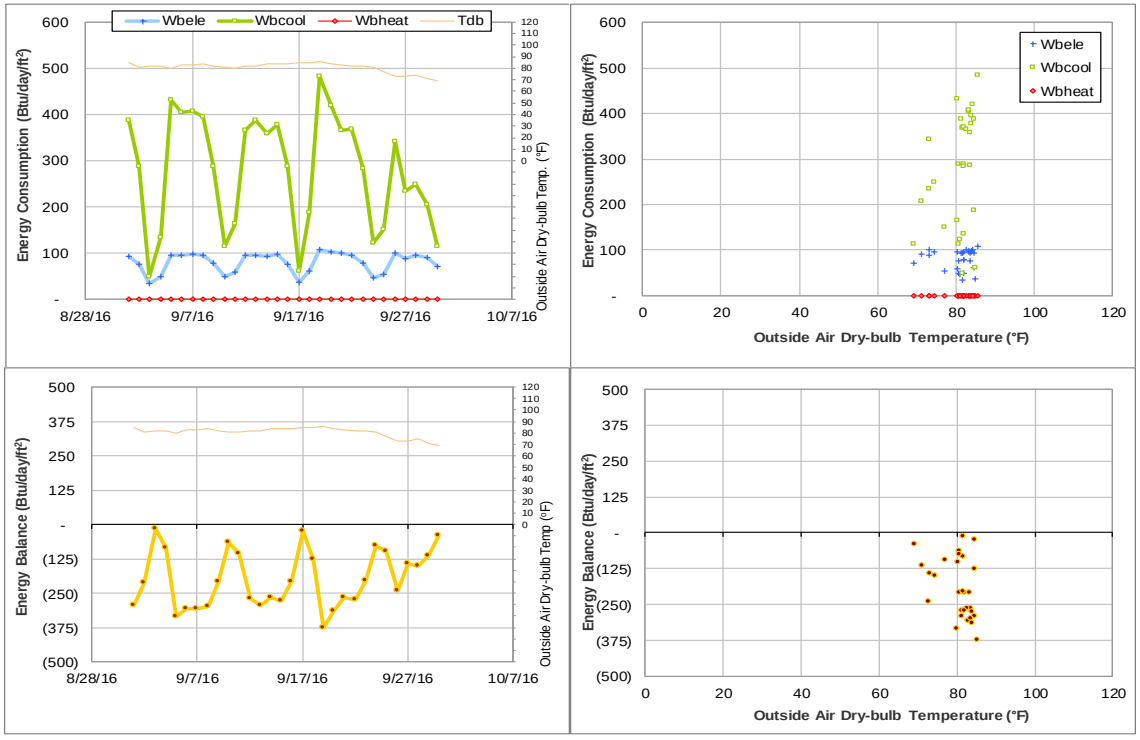


Figure IV-61 Harrington Education Center Classroom Building TAMU BLDG # 438 Energy Balance Plot during September 2016

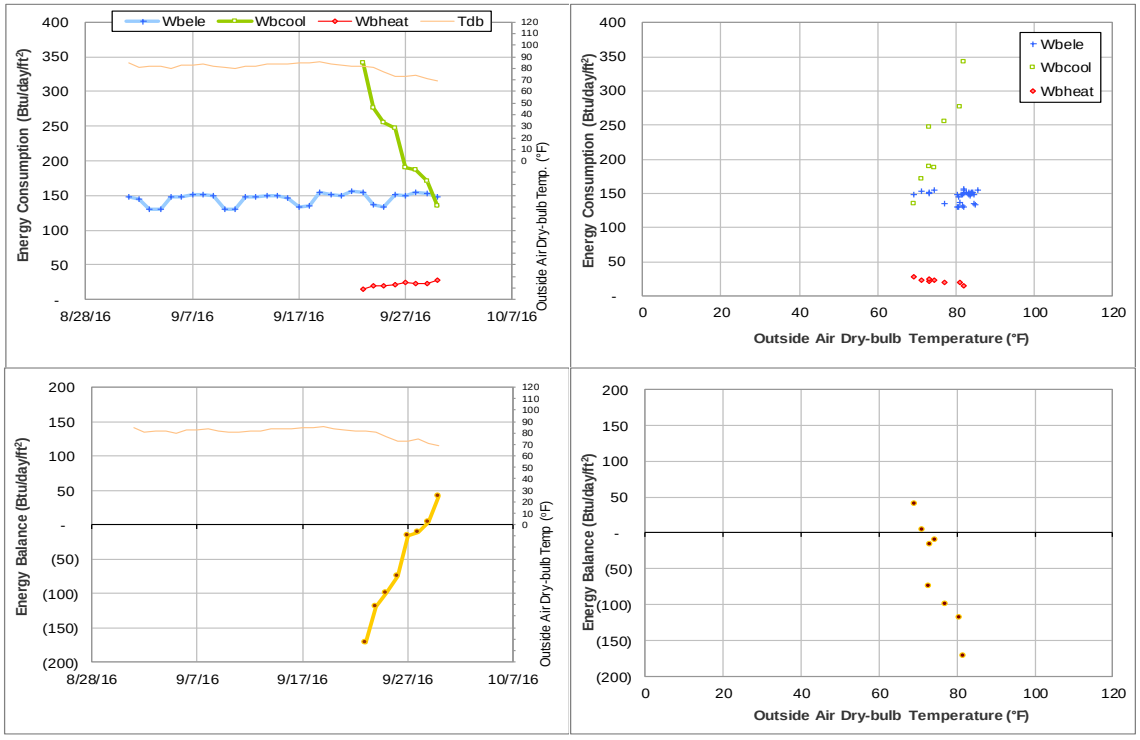


Figure IV-62 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during September 2016

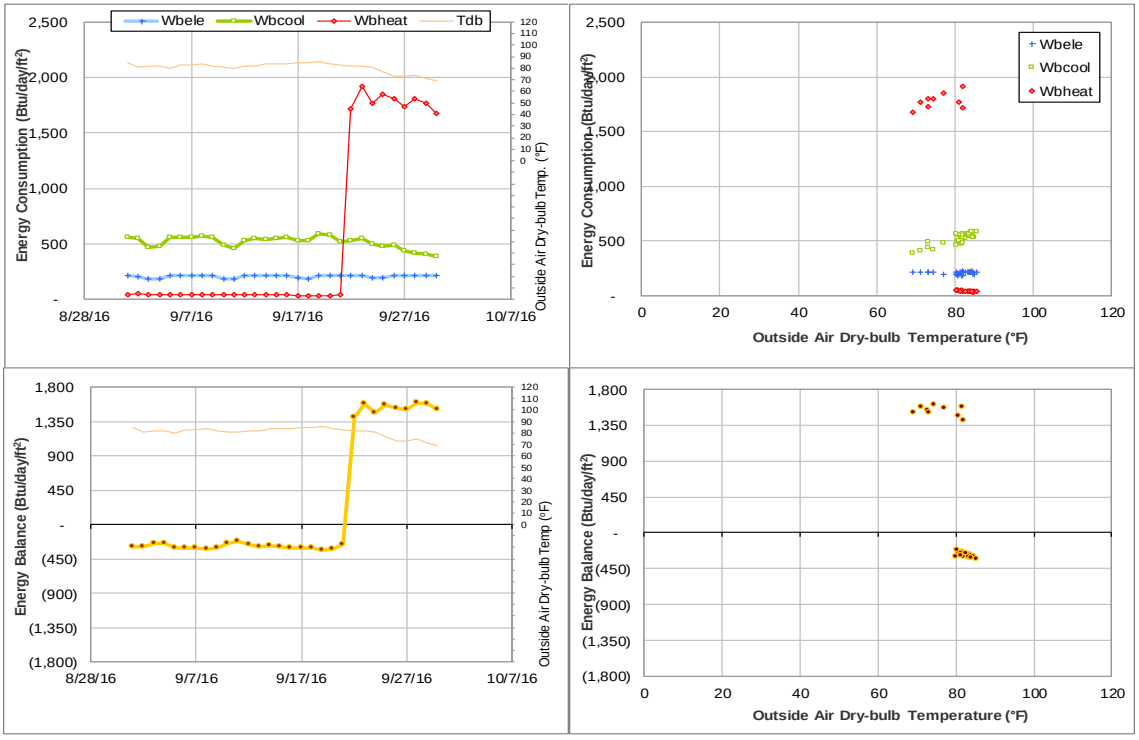


Figure IV-63 Peterson Building TAMU BLDG # 444 Energy Balance Plot during September 2016

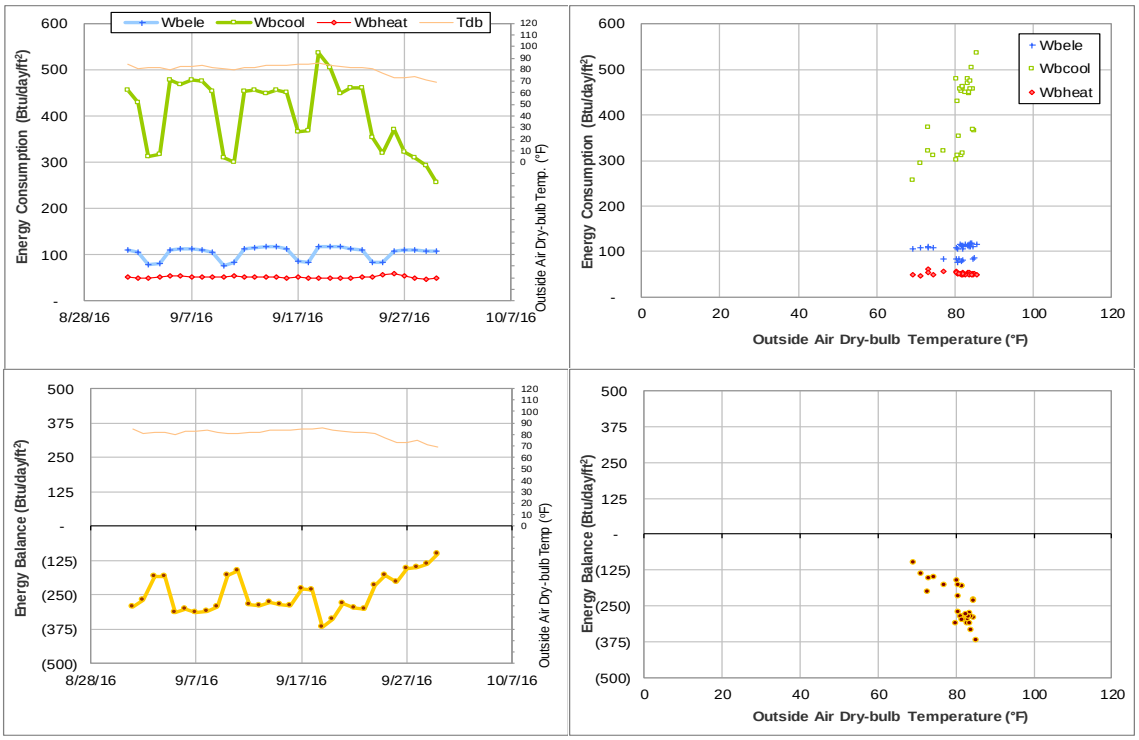


Figure IV-64 Teague Research Center and DPC Annex TAMU BLDG # 445 and #517 Energy Balance Plot during September 2016

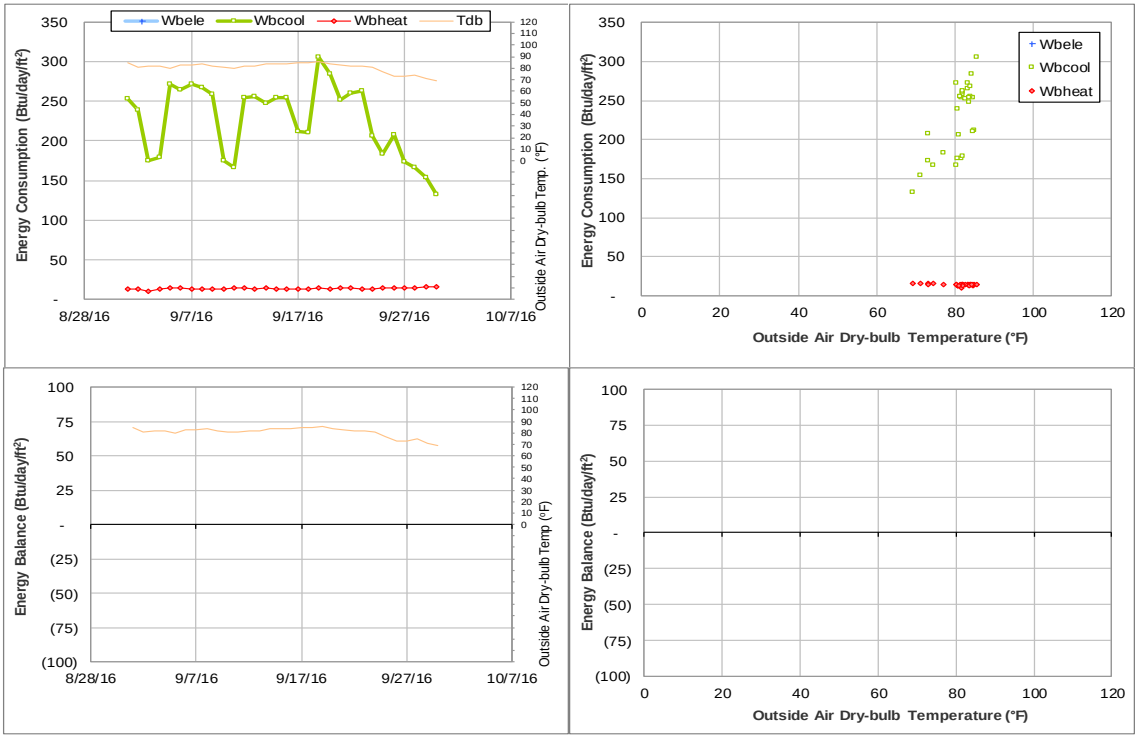


Figure IV-65 Teague Research Center TAMU BLDG # 445 Energy Balance Plot during September 2016

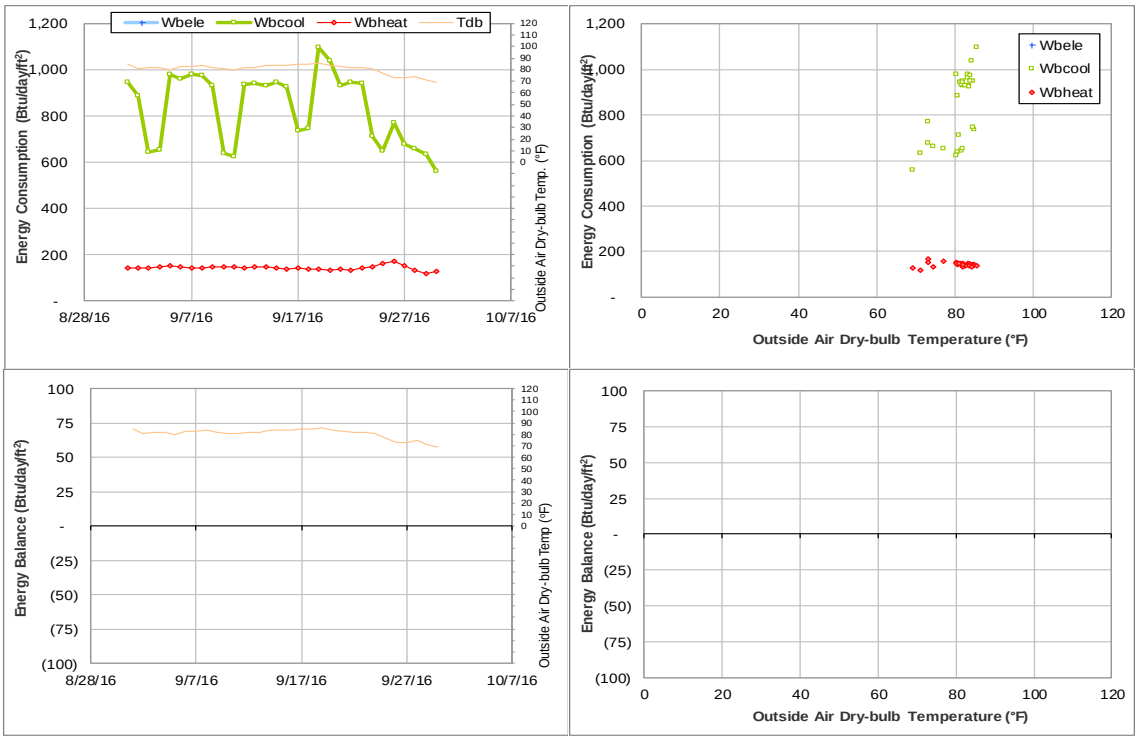


Figure IV-66 DPC Annex TAMU BLDG # 517 Energy Balance Plot during September 2016

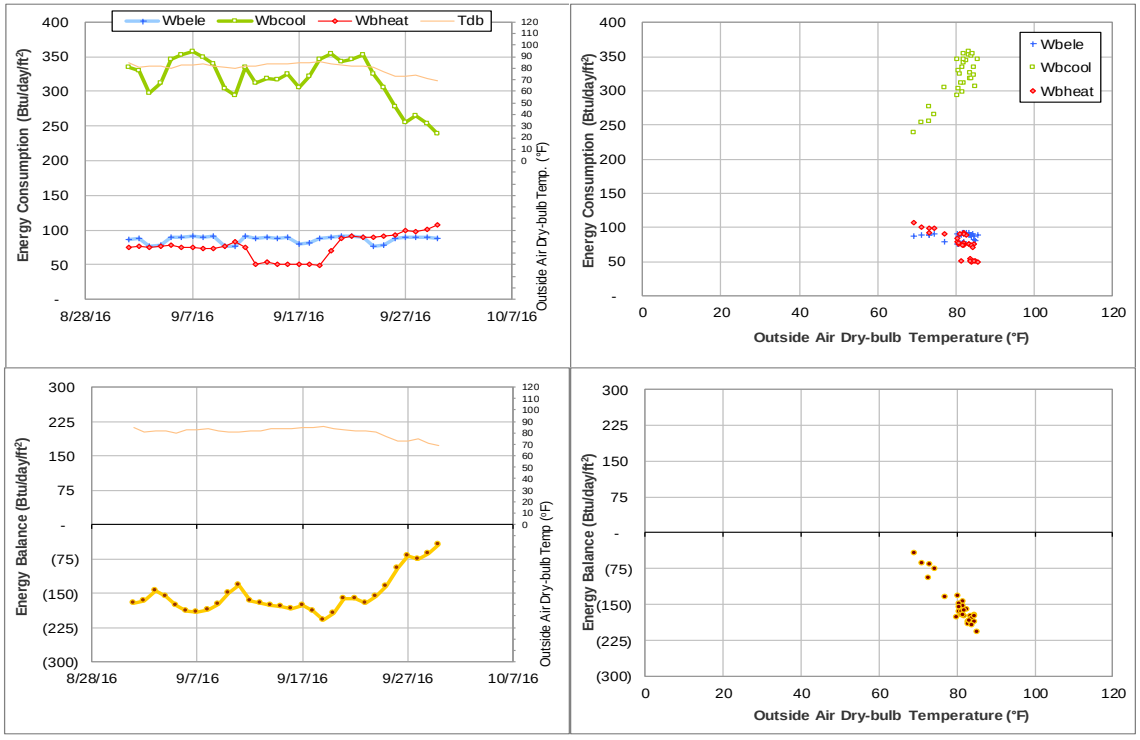


Figure IV-67 Rudder Tower and Theatre Complex TAMU BLDG # 446 Energy Balance Plot during September 2016

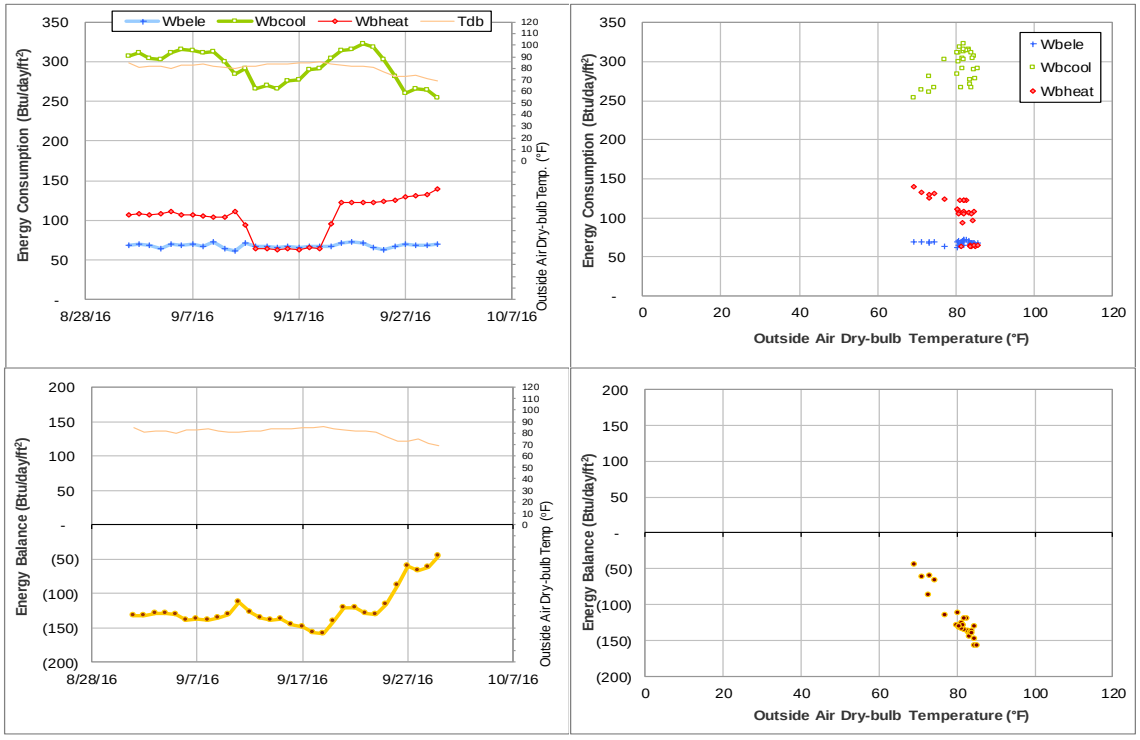


Figure IV-68 Rudder Theatre Complex TAMU BLDG # 446 Energy Balance Plot during September 2016

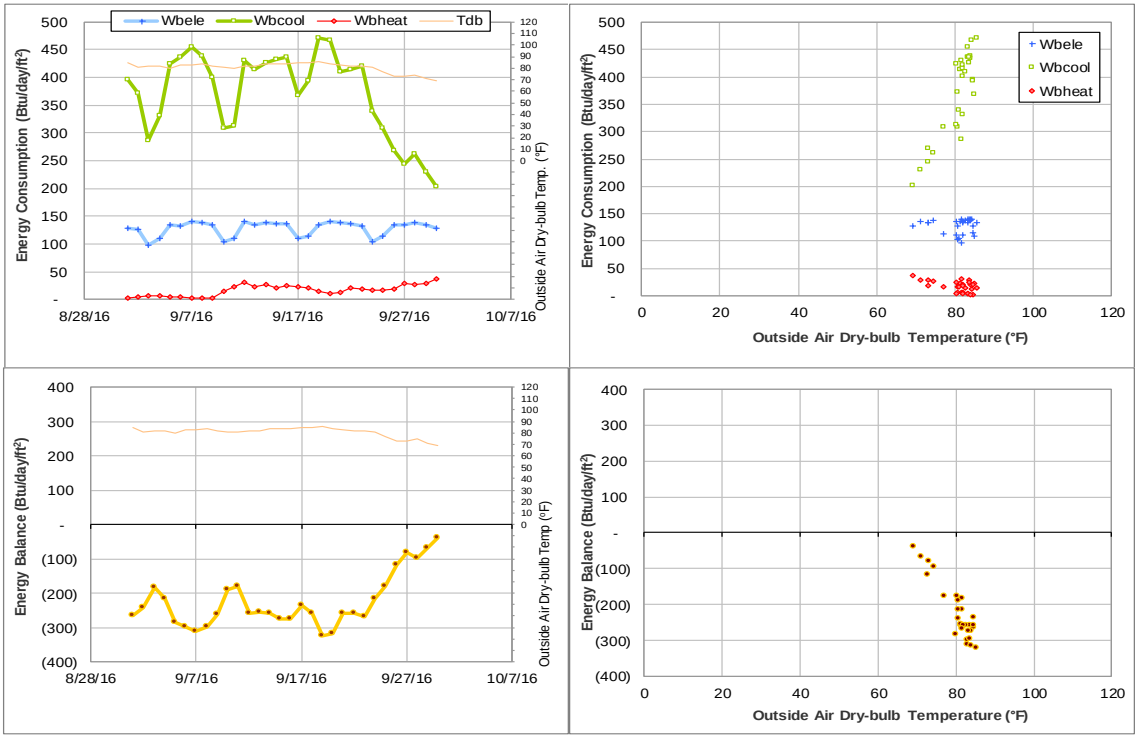


Figure IV-69 Rudder Tower TAMU BLDG # 446 Energy Balance Plot during September 2016

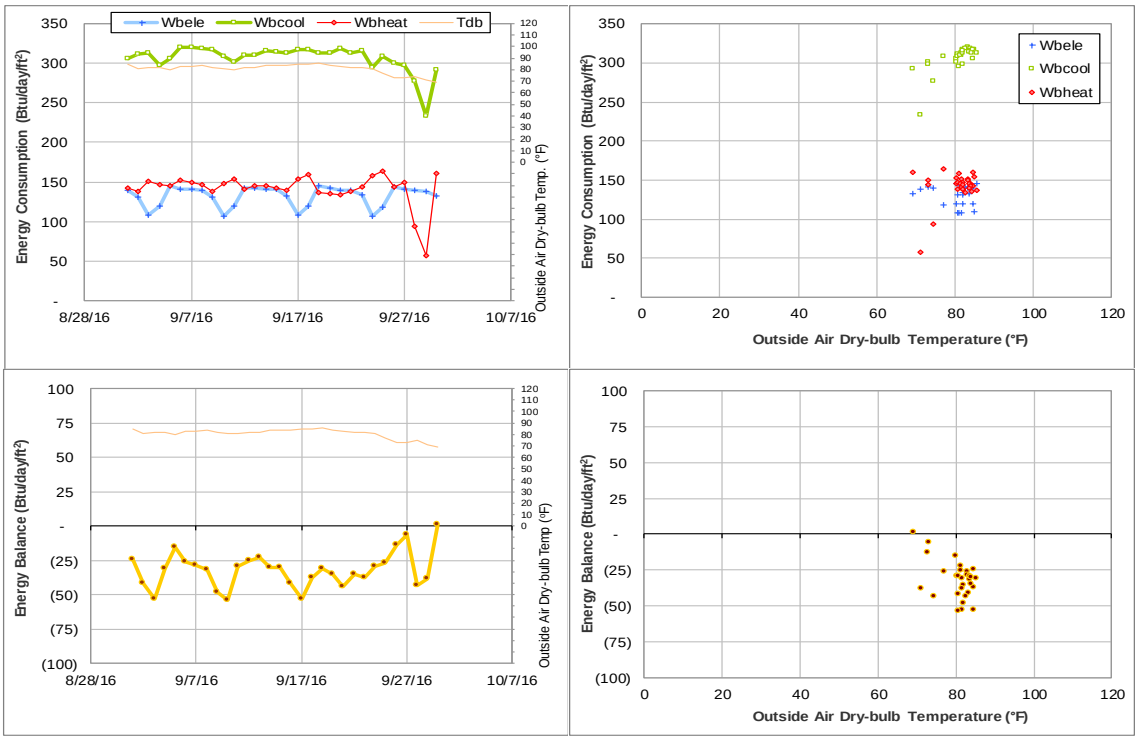


Figure IV-70 Adams Band Hall TAMU BLDG # 448 Energy Balance Plot during September 2016

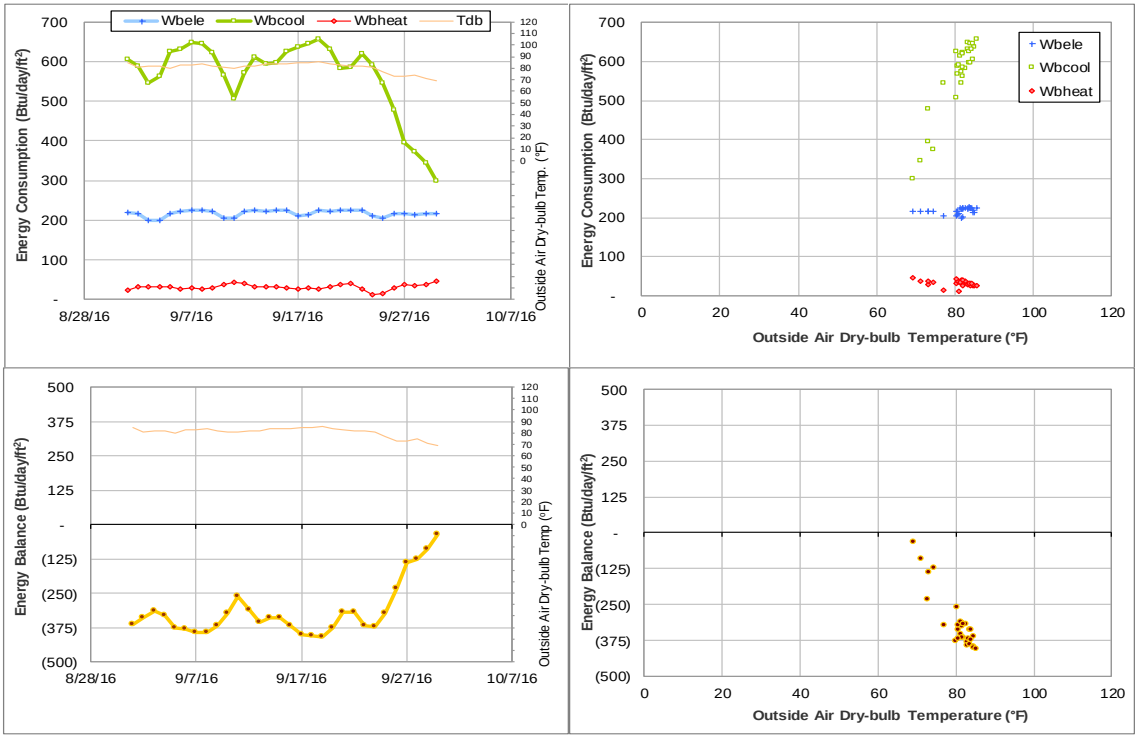


Figure IV-71 Biological Sciences Building - West TAMU BLDG # 449 Energy Balance Plot during September 2016

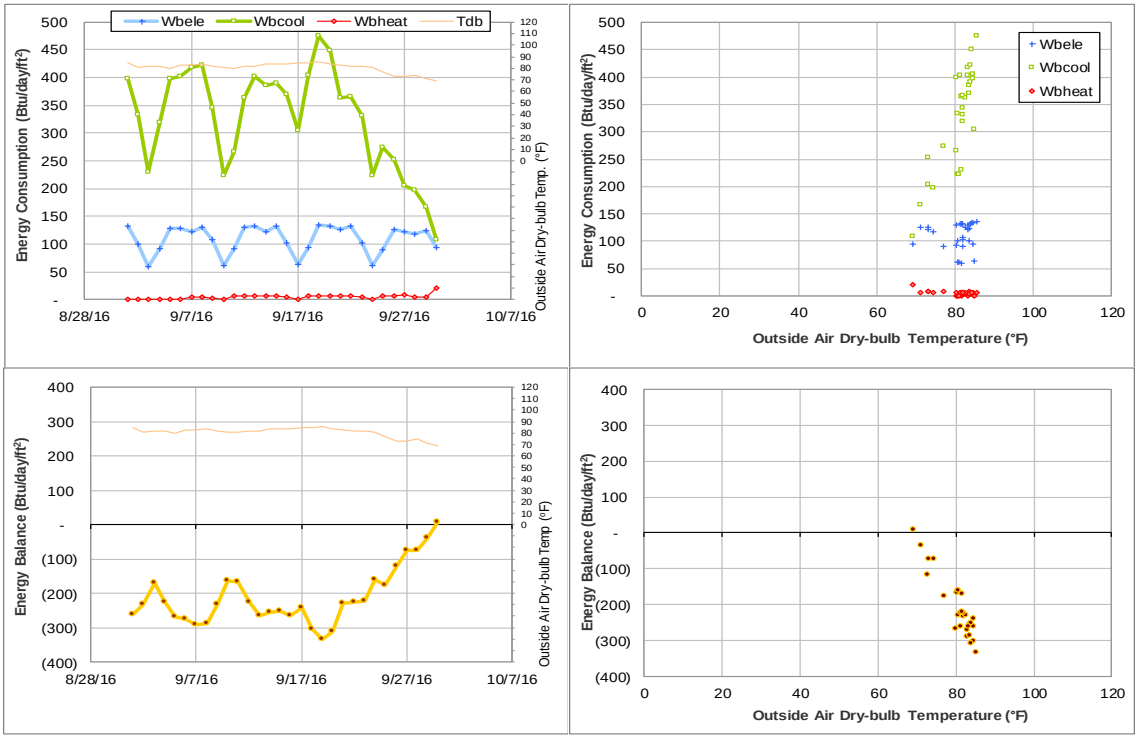


Figure IV-72 Duncan Dining Hall TAMU BLDG # 450 Energy Balance Plot during September 2016

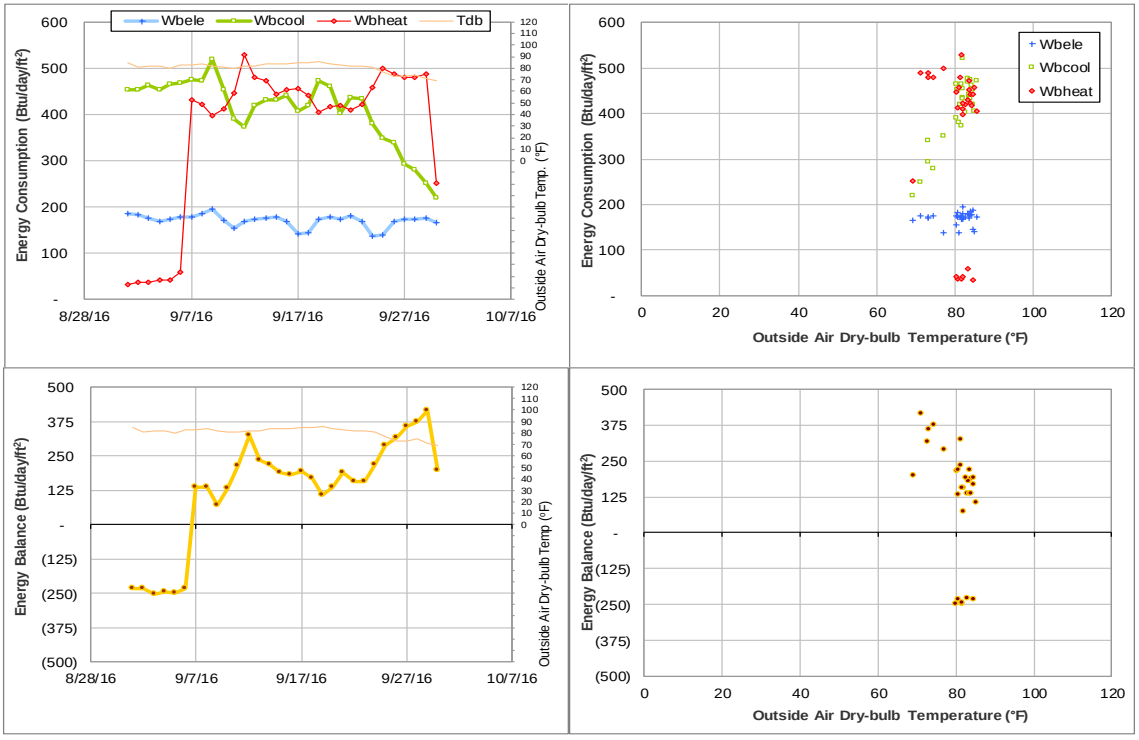


Figure IV-73 MSC TAMU BLDG # 454 Energy Balance Plot during September 2016

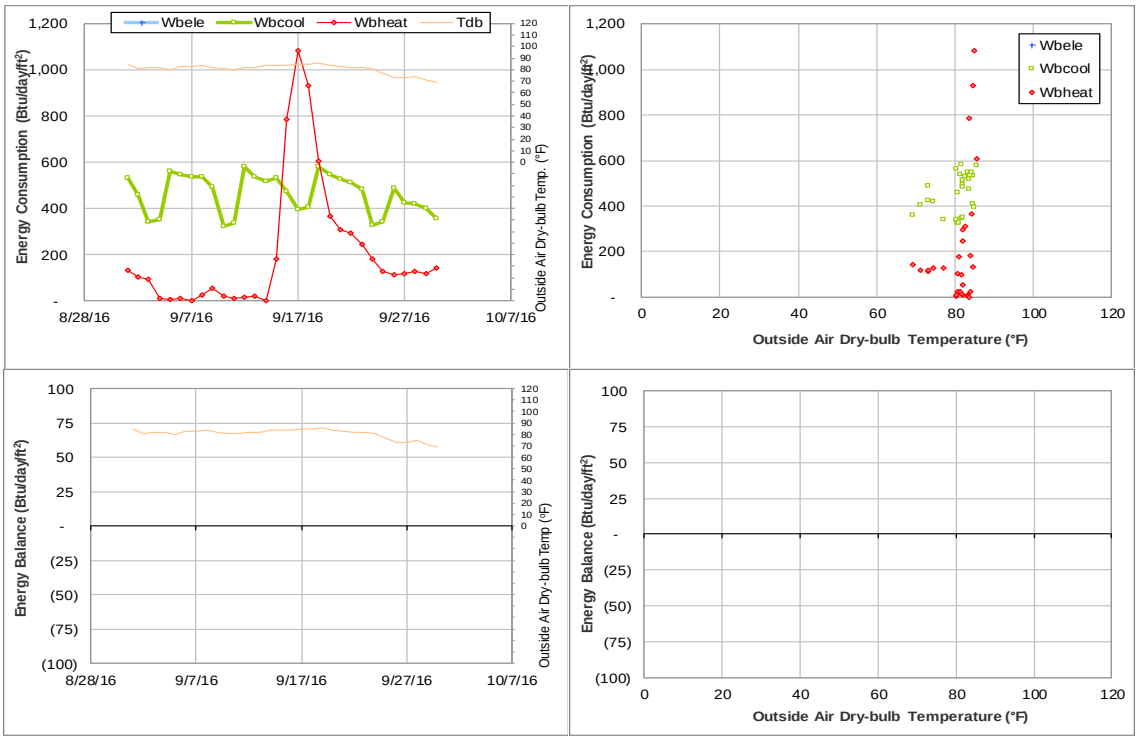


Figure IV-74 Military Sciences Building TAMU BLDG # 456 Energy Balance Plot during September 2016

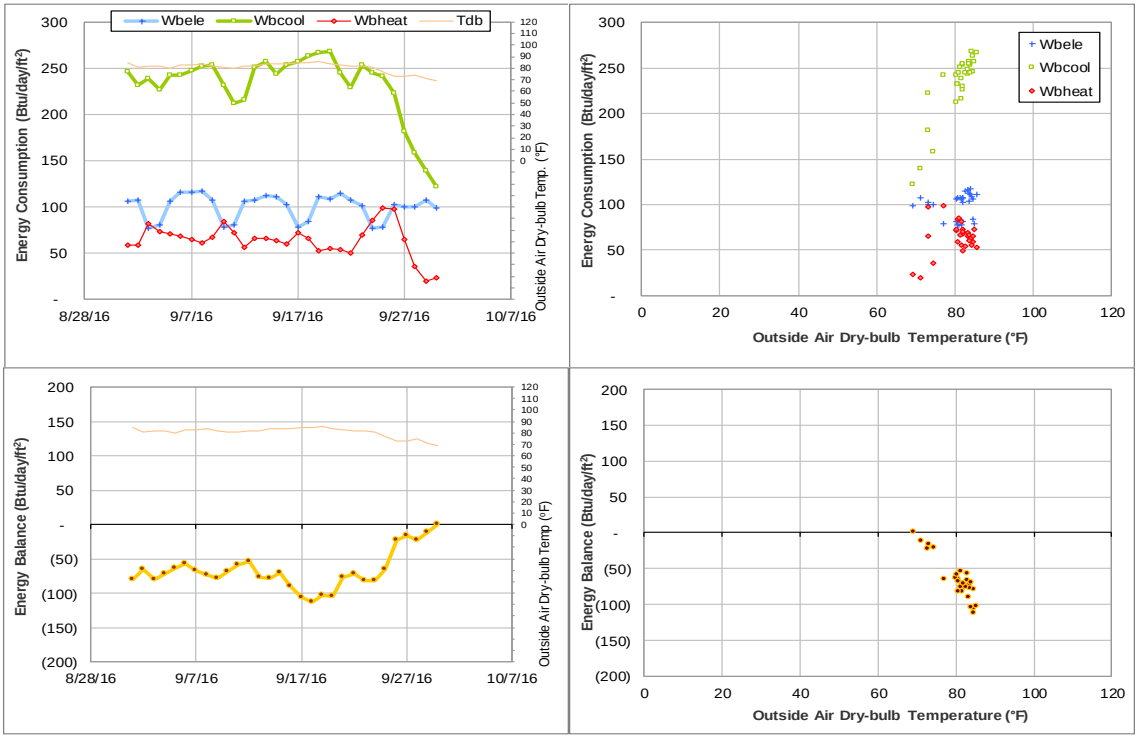


Figure IV-75 TAES Annex Building TAMU BLDG # 457 Energy Balance Plot during September 2016

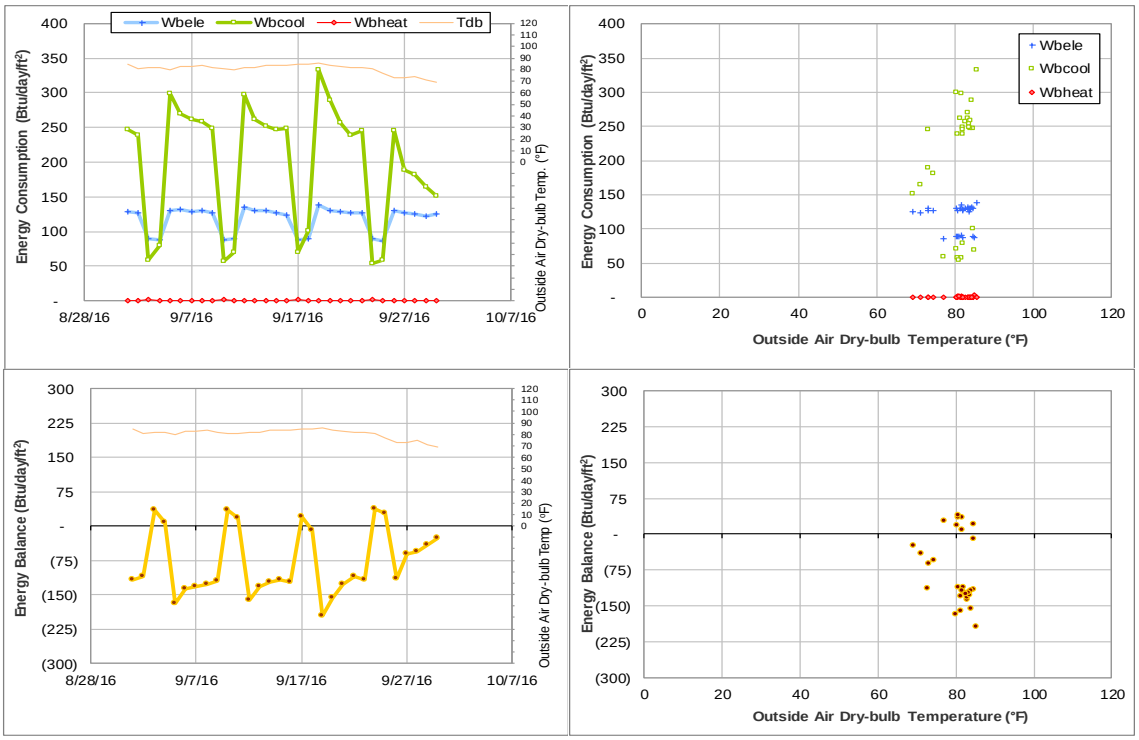


Figure IV-76 Coke Building TAMU BLDG # 461 Energy Balance Plot during September 2016

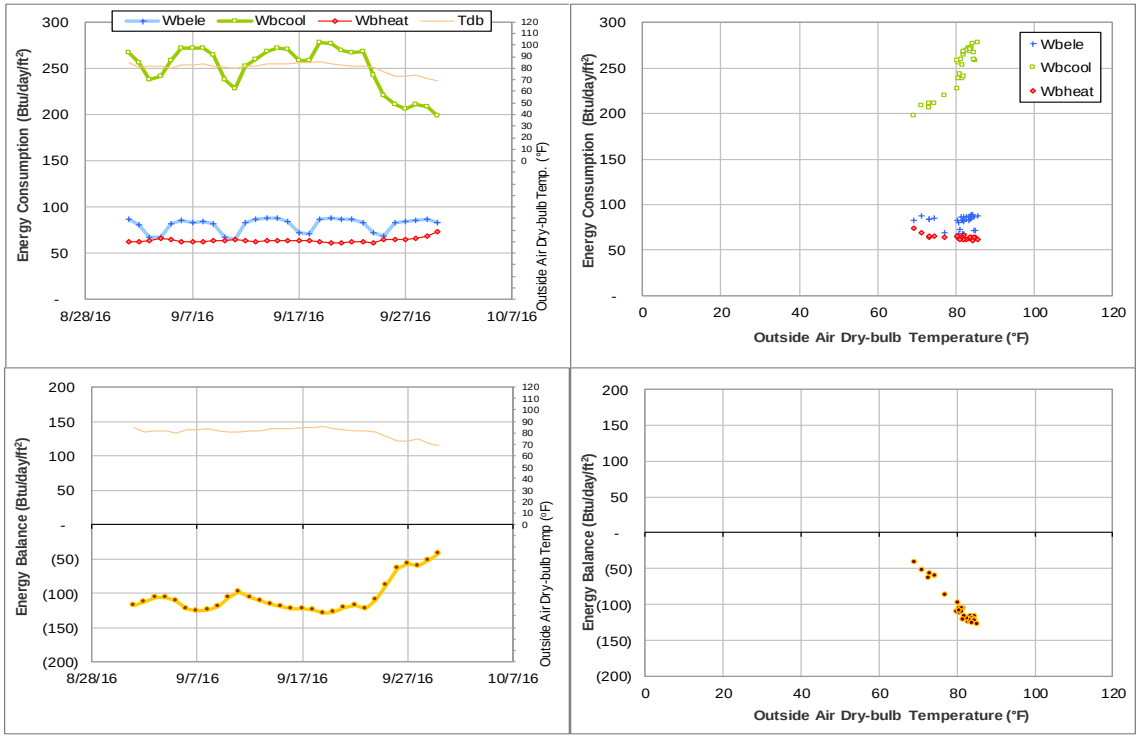


Figure IV-77 Academic Building TAMU BLDG # 462 Energy Balance Plot during September 2016

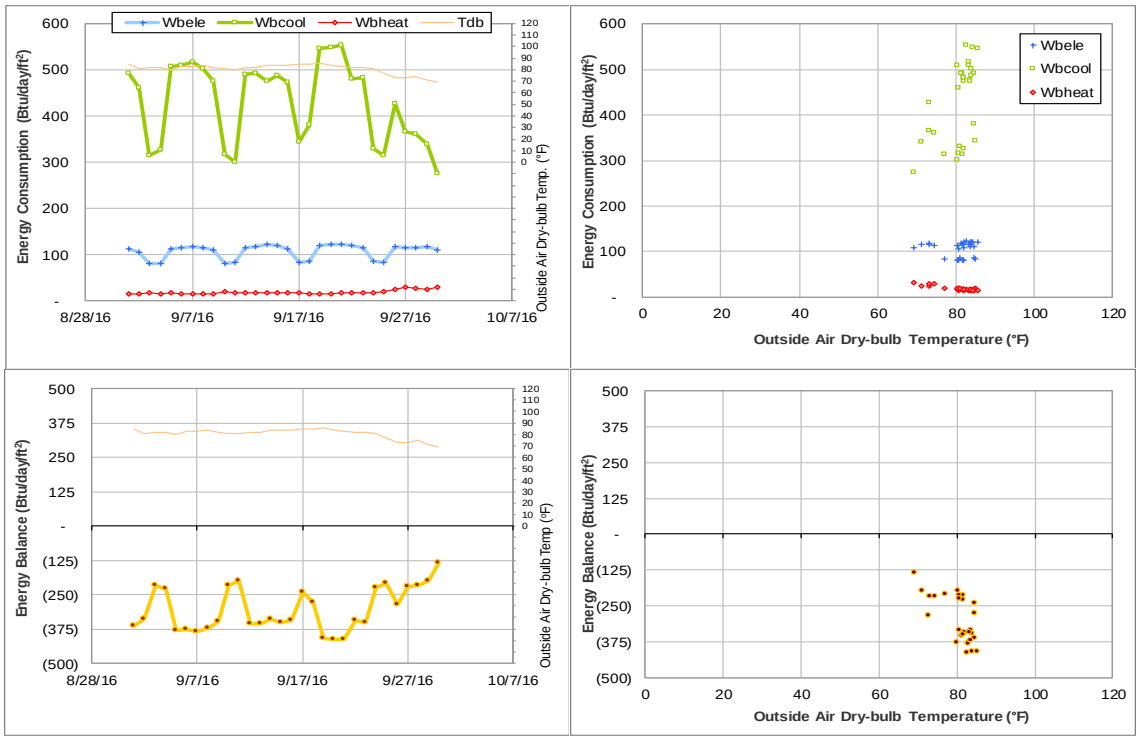


Figure IV-78 Psychology Building TAMU BLDG # 463 Energy Balance Plot during September 2016

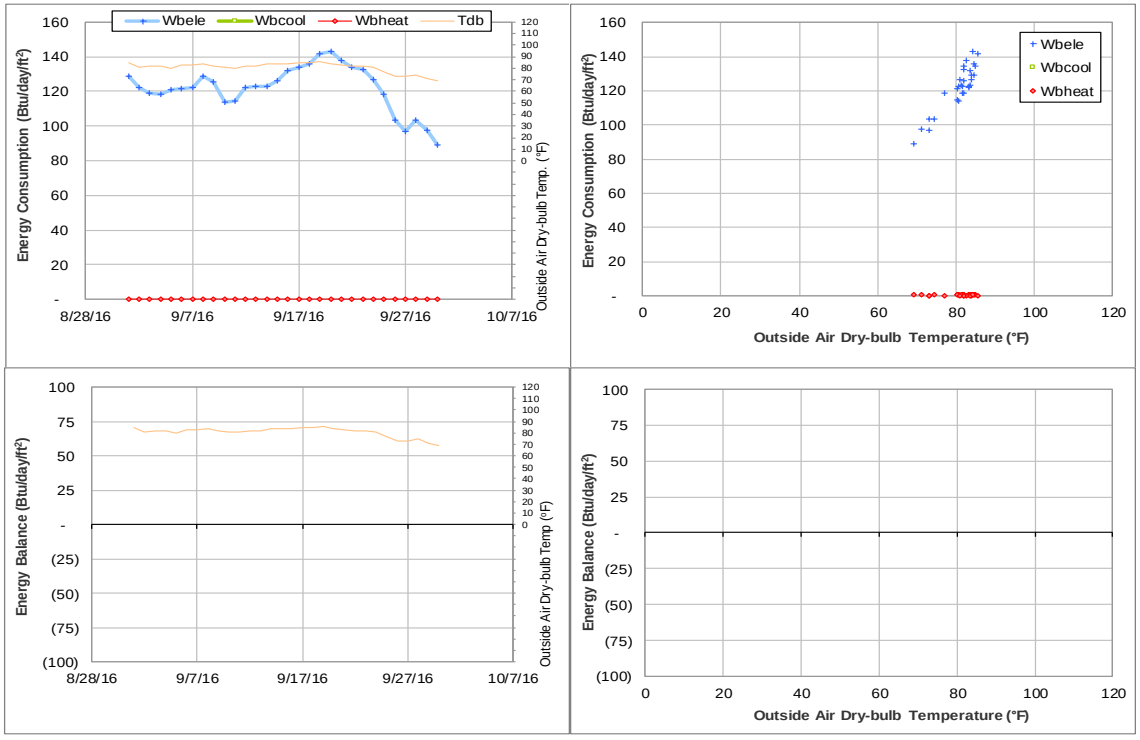


Figure IV-79 State Chemist Building TAMU BLDG # 464 Energy Balance Plot during September 2016

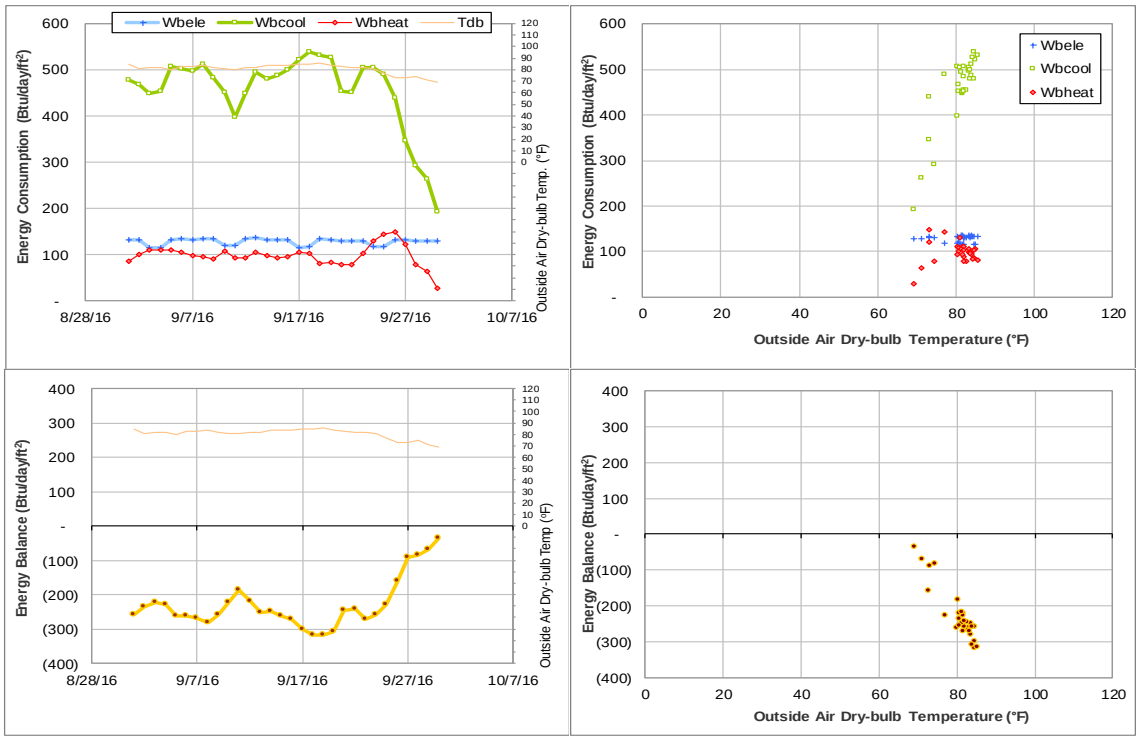


Figure IV-80 Butler Hall TAMU BLDG # 465 Energy Balance Plot during September 2016

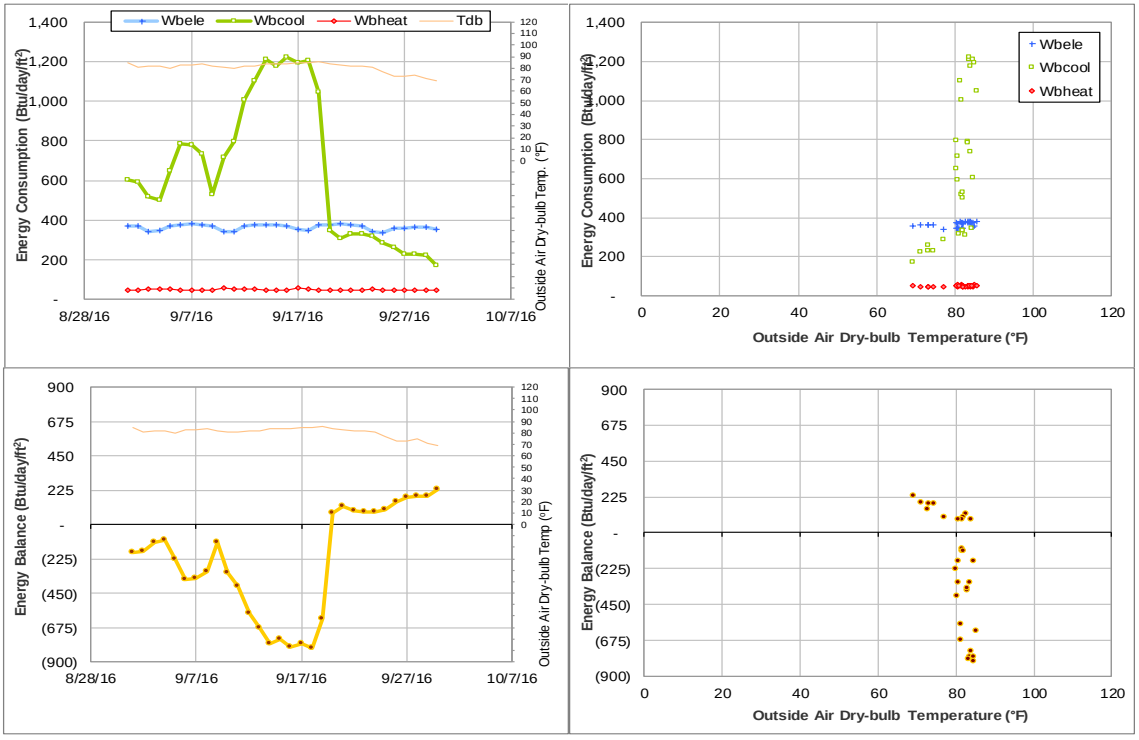


Figure IV-81 Biological Sciences Building - East TAMU BLDG # 467 Energy Balance Plot during September 2016

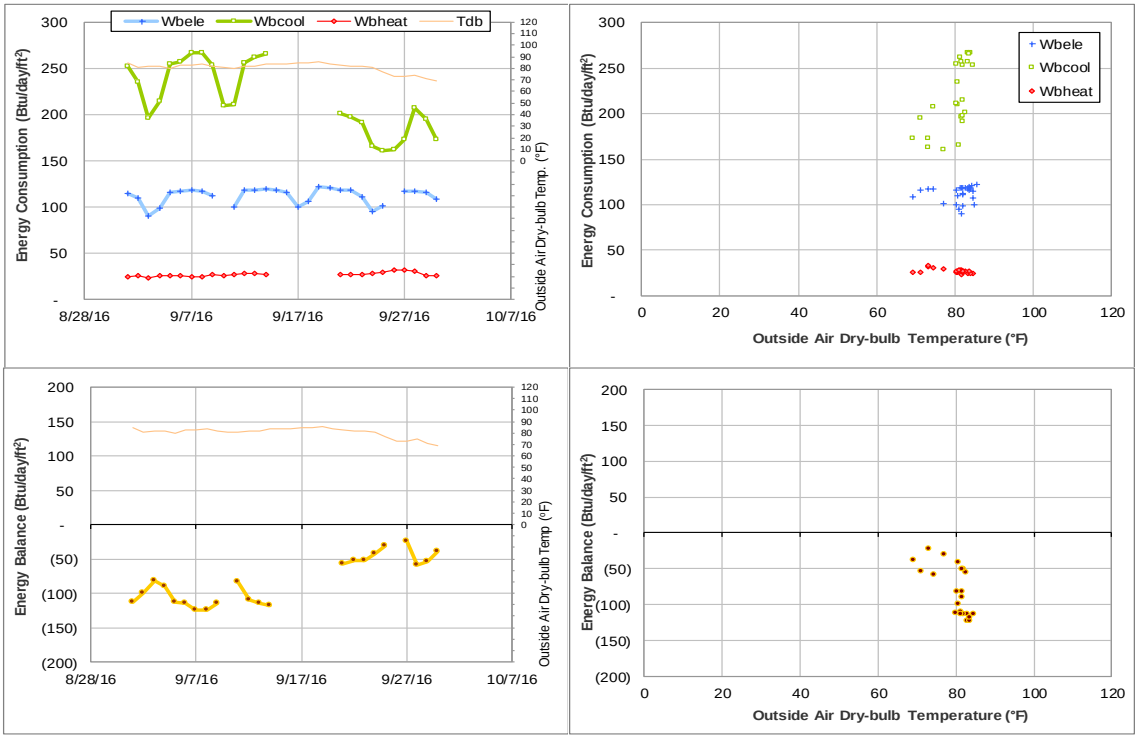


Figure IV-82 Evans Library TAMU BLDG # 468 Energy Balance Plot during September 2016

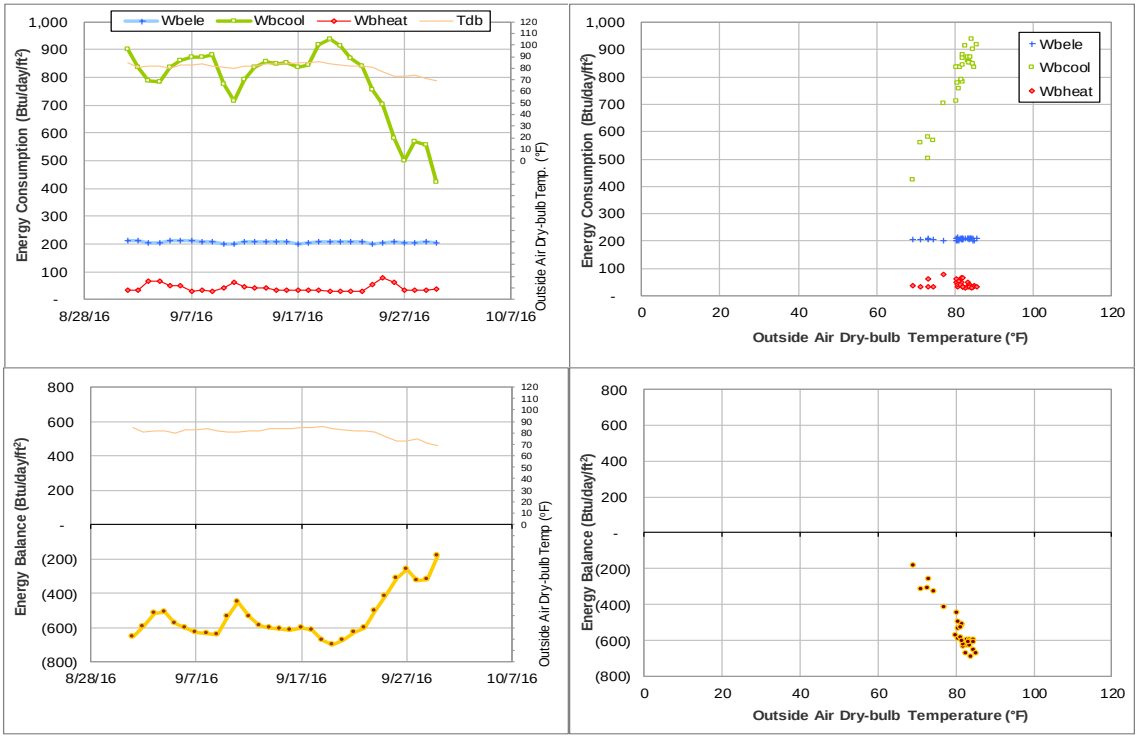


Figure IV-83 Central Campus Parking Garage TAMU BLDG # 469 Energy Balance Plot during September 2016

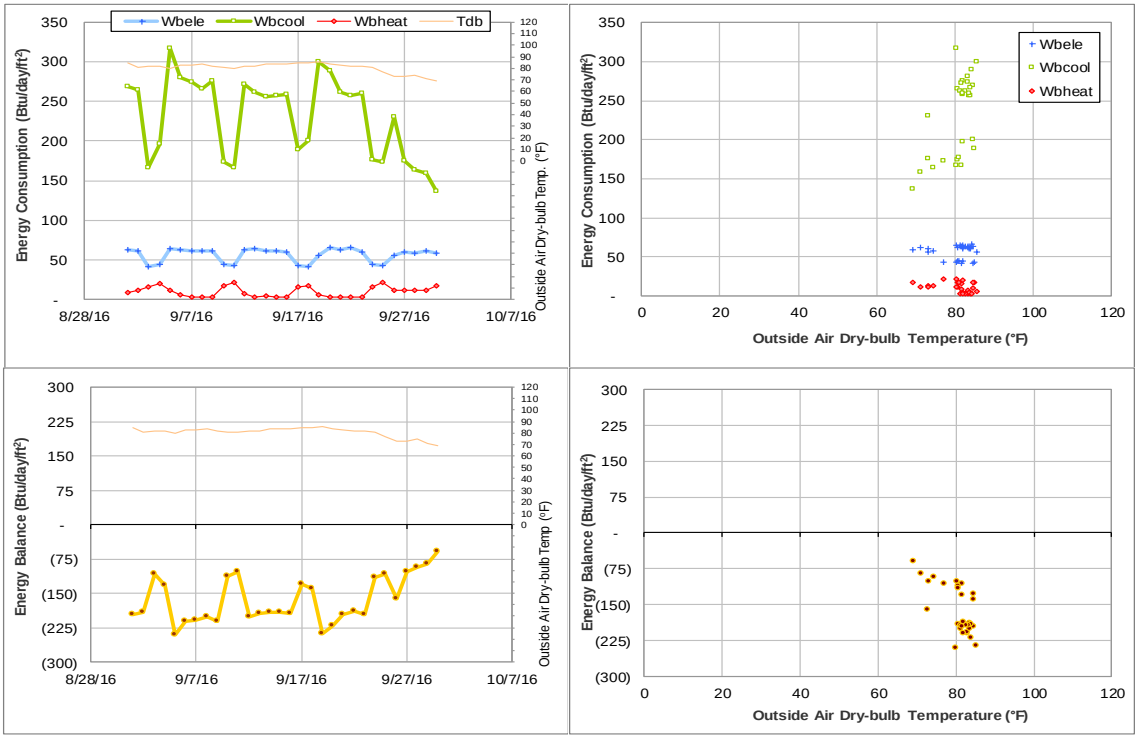


Figure IV-84 Glasscock History Bldg TAMU BLDG # 470 Energy Balance Plot during September 2016

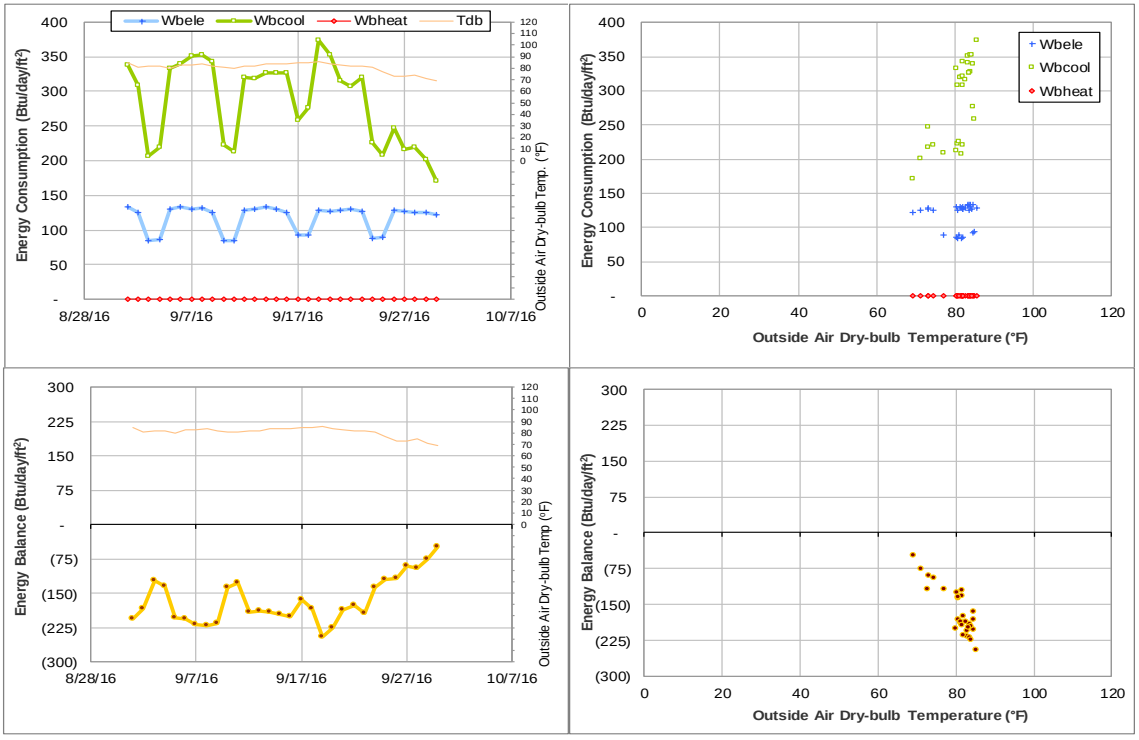


Figure IV-85 Pavilion TAMU BLDG # 471 Energy Balance Plot during September 2016

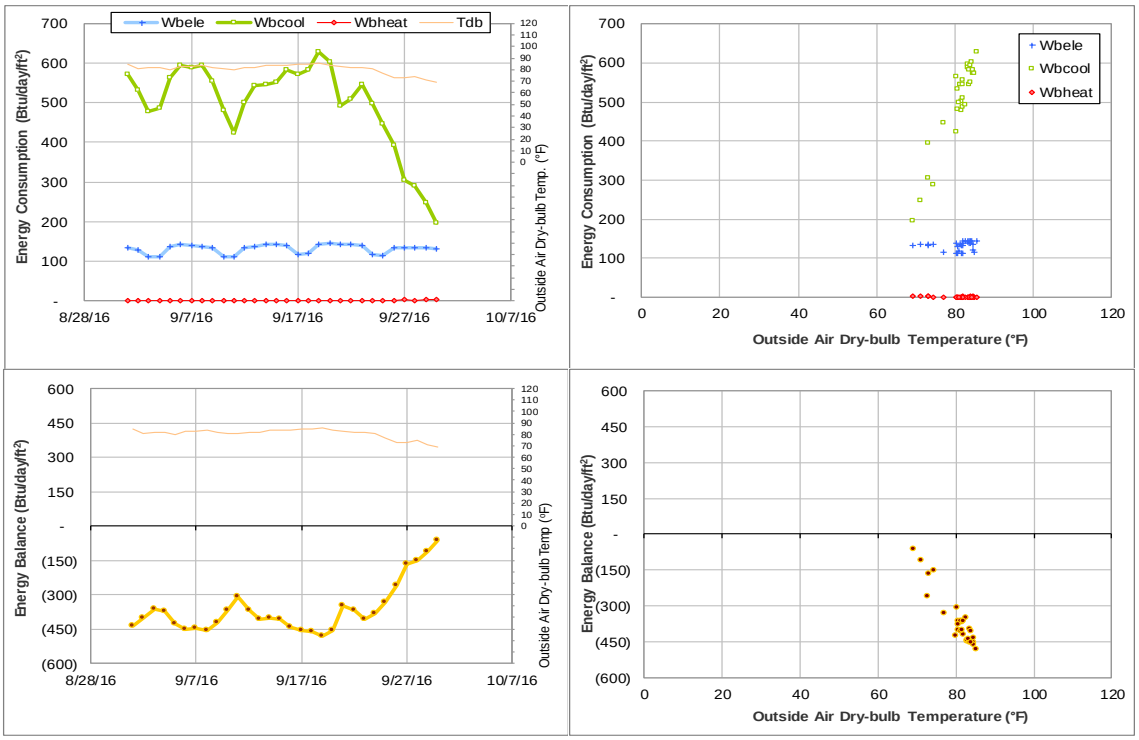


Figure IV-86 Animal Industries TAMU BLDG # 472 Energy Balance Plot during September 2016

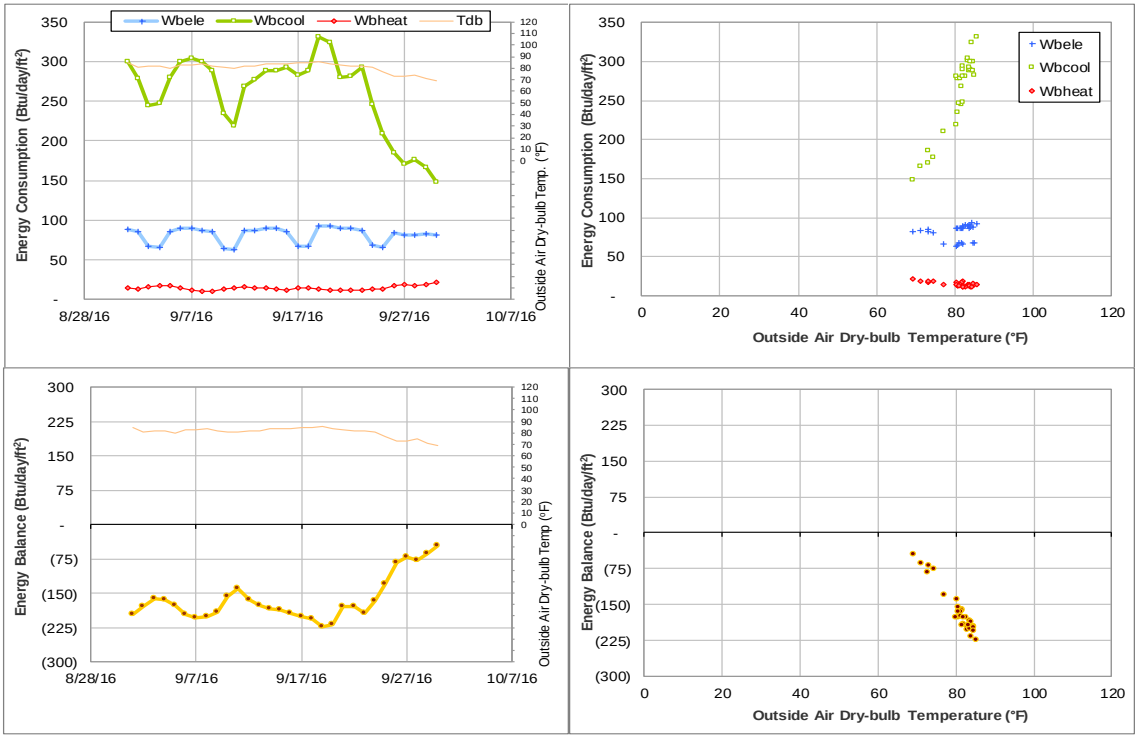


Figure IV-87 Williams Administration Building TAMU BLDG # 473 Energy Balance Plot during September 2016

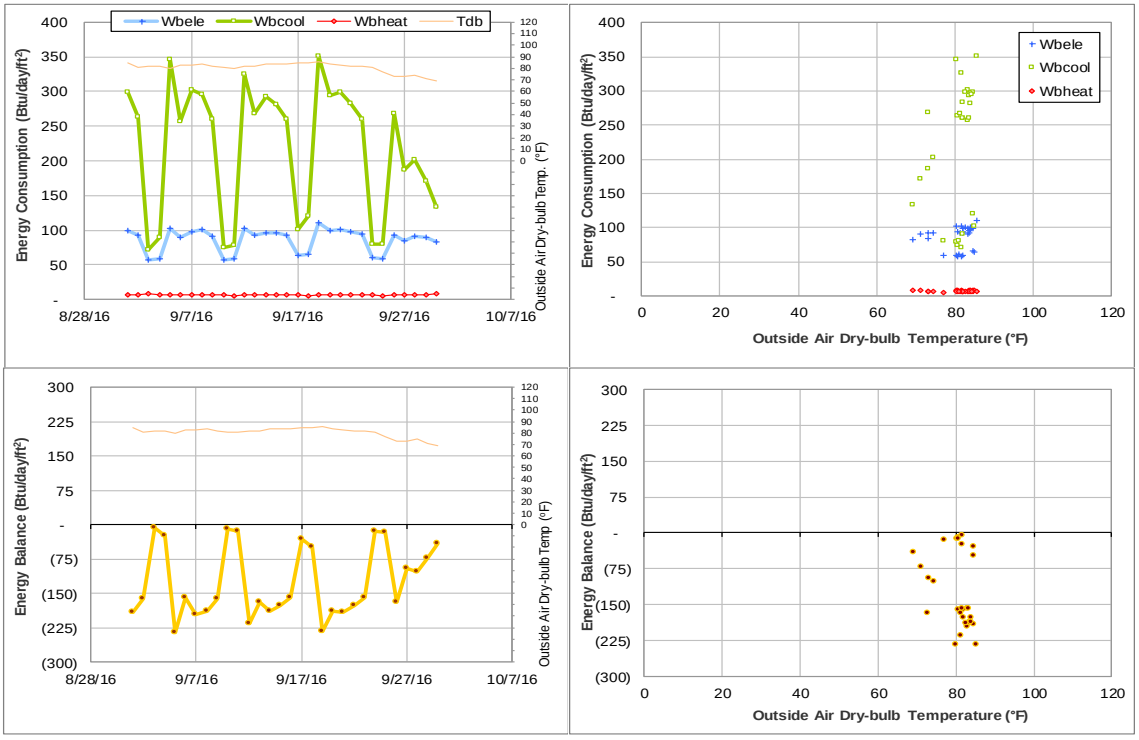


Figure IV-88 YMCA Building TAMU BLDG # 474 Energy Balance Plot during September 2016

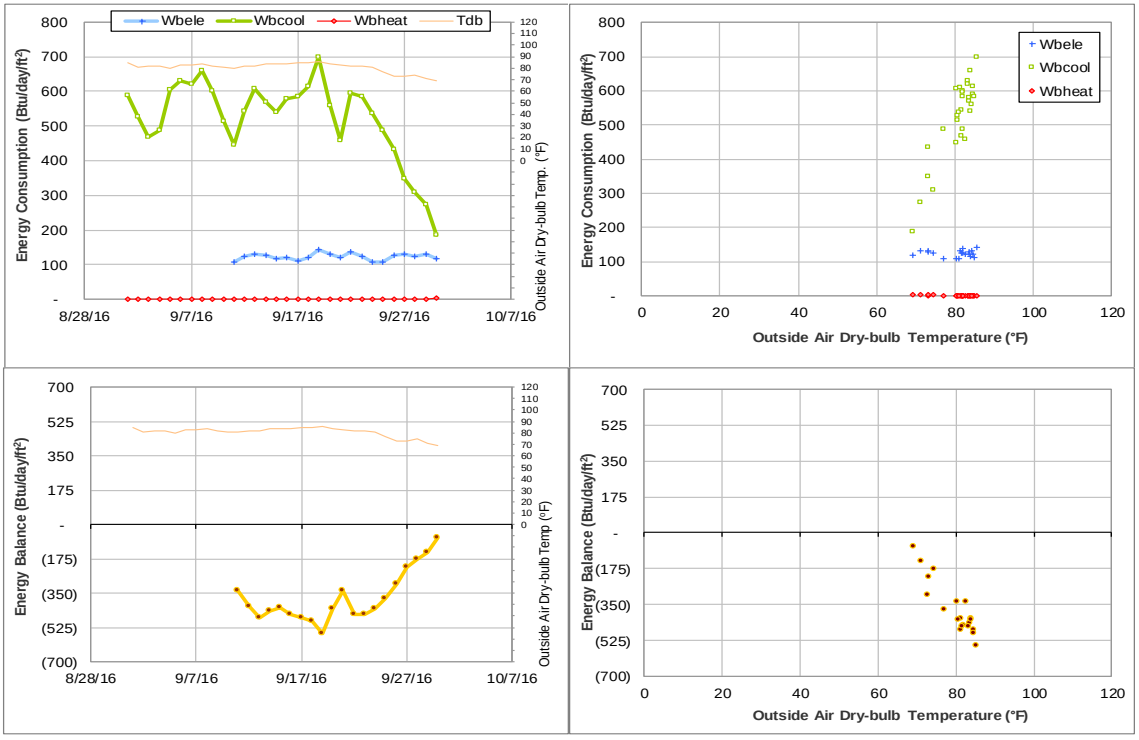


Figure IV-89 Francis Hall TAMU BLDG # 476 Energy Balance Plot during September 2016

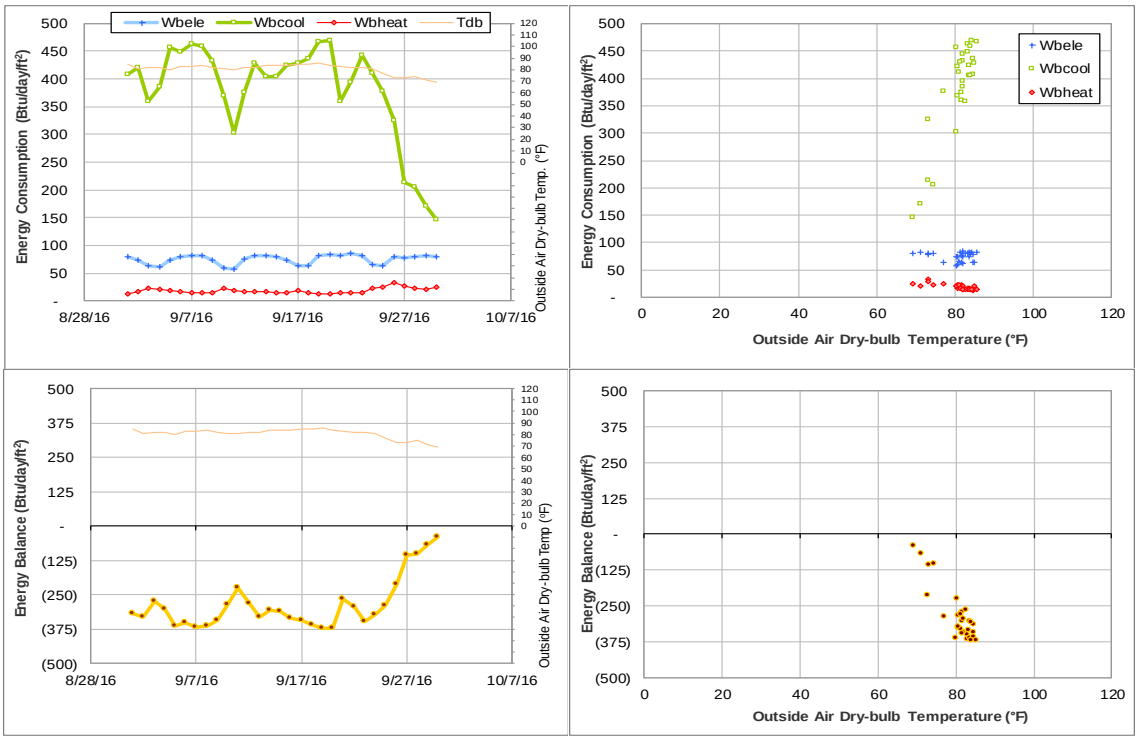


Figure IV-90 Anthropology Building TAMU BLDG # 477 Energy Balance Plot during September 2016

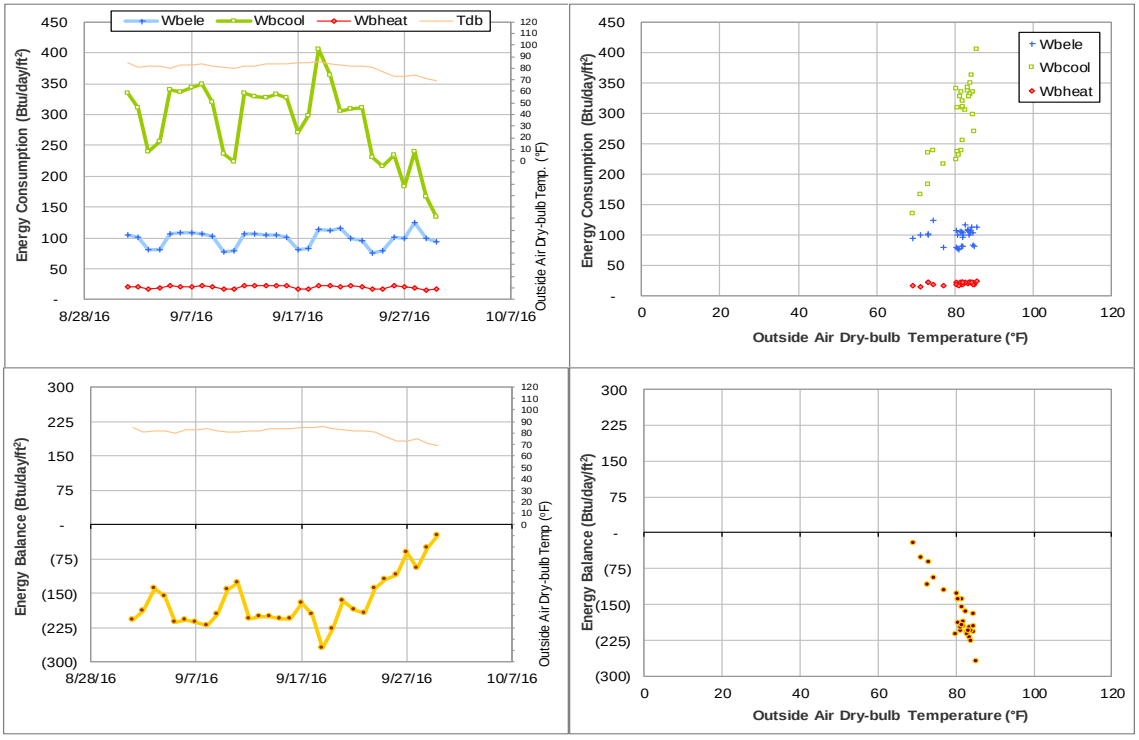


Figure IV-91 Scoates Hall TAMU BLDG # 478 Energy Balance Plot during September 2016

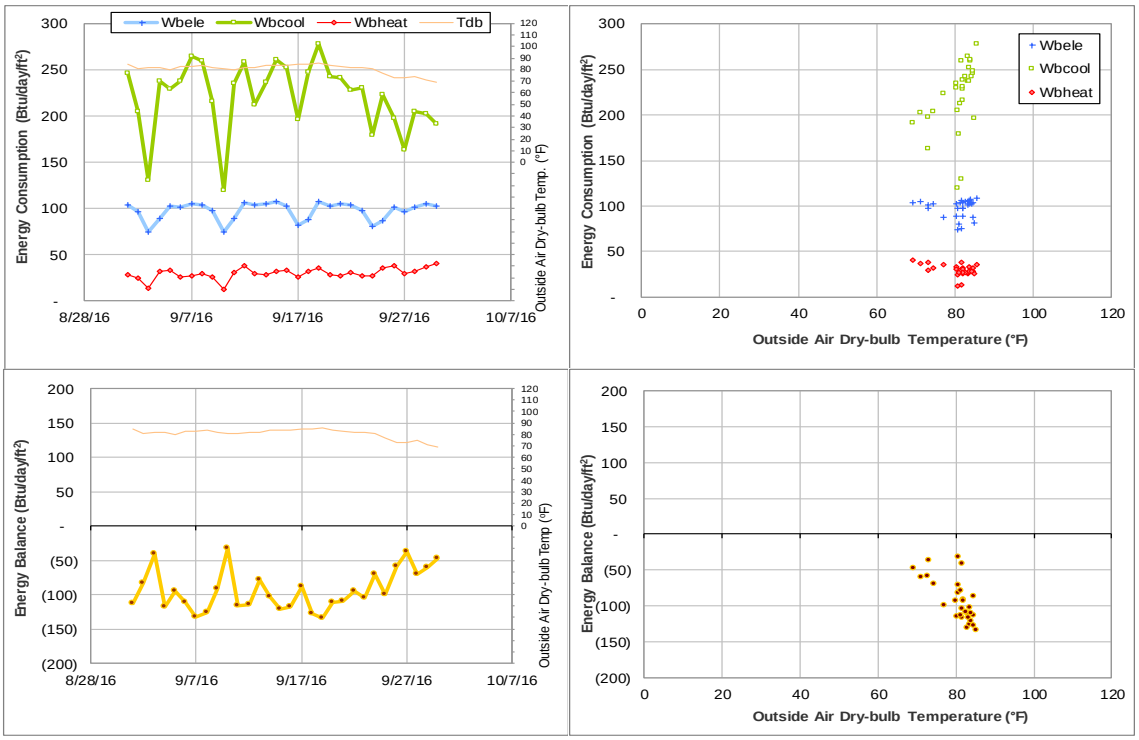


Figure IV-92 Bolton Hall TAMU BLDG # 480 Energy Balance Plot during September 2016

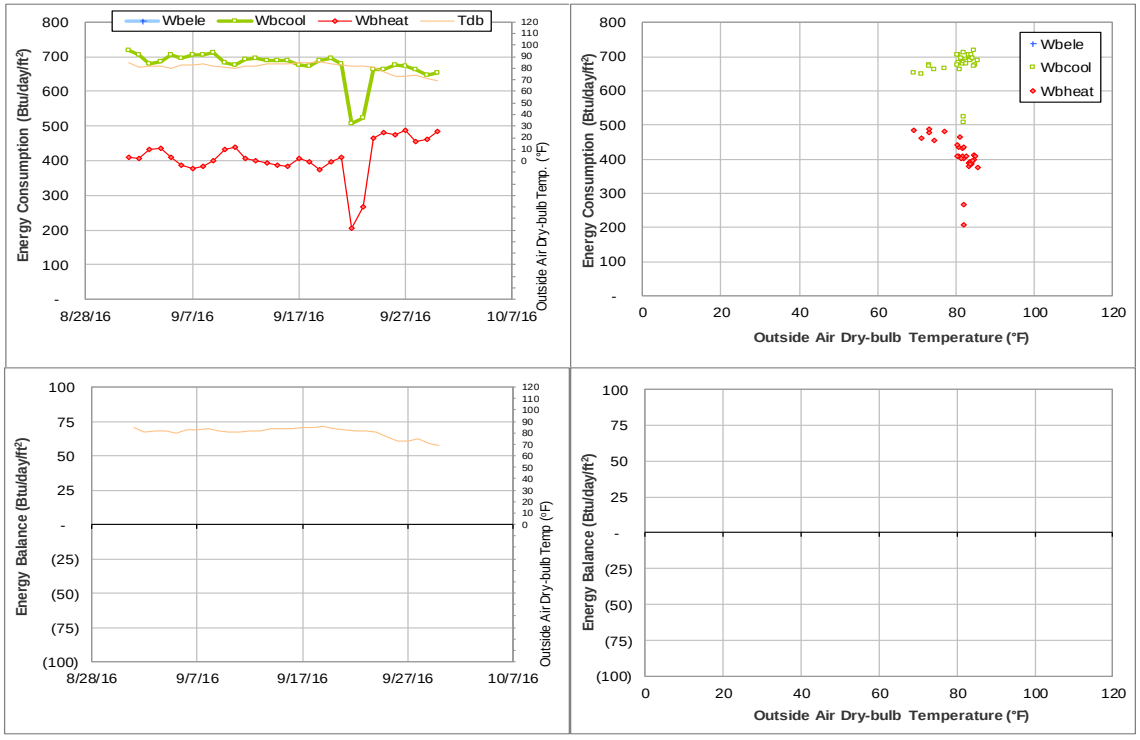


Figure IV-93 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during September 2016

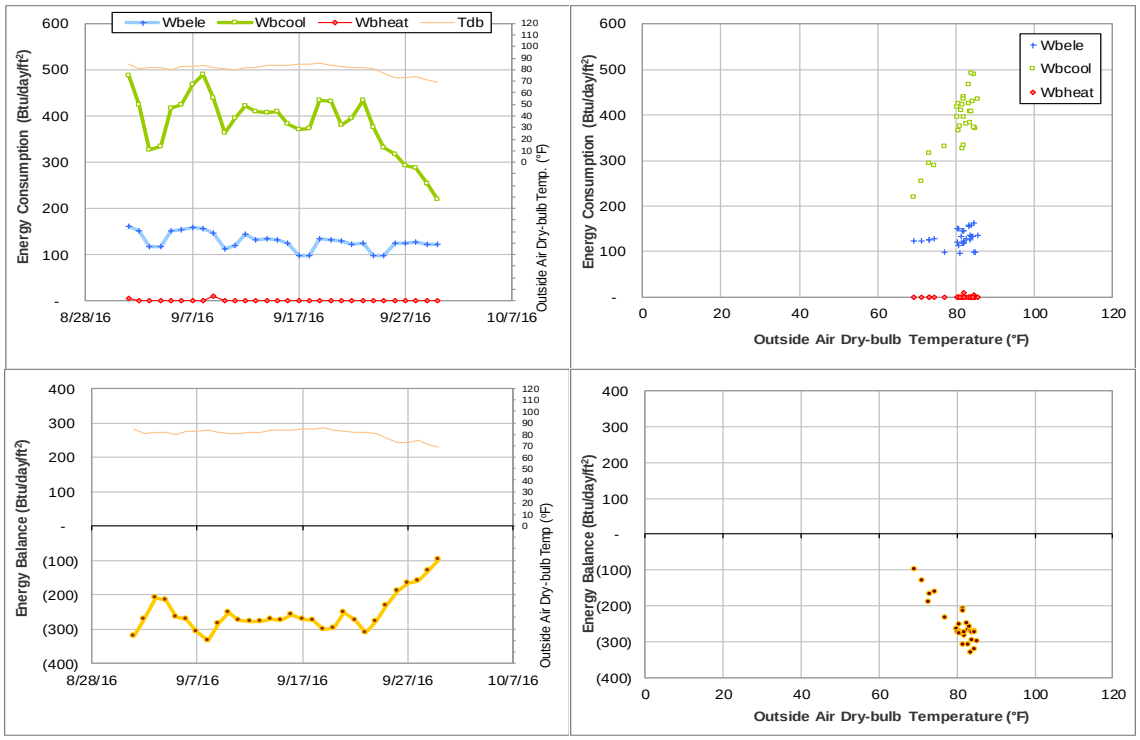


Figure IV-94 Fermier Hall TAMU BLDG # 482 Energy Balance Plot during September 2016

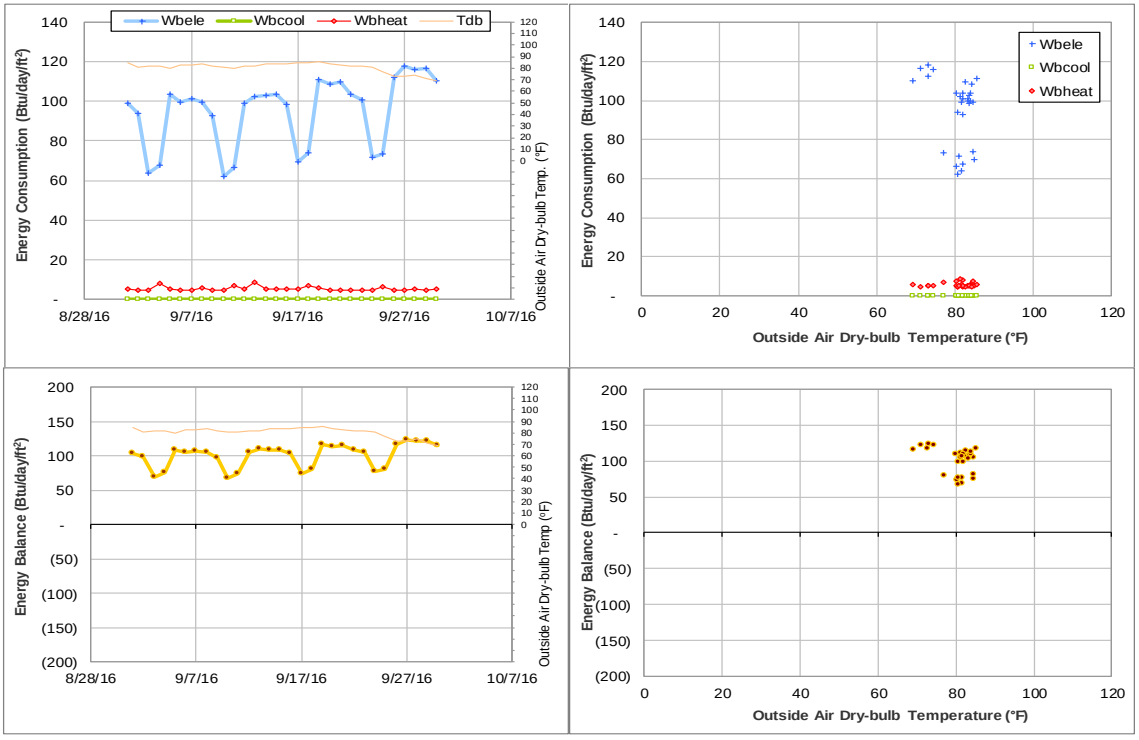


Figure IV-95 Thompson Hall TAMU BLDG # 483 Energy Balance Plot during September 2016

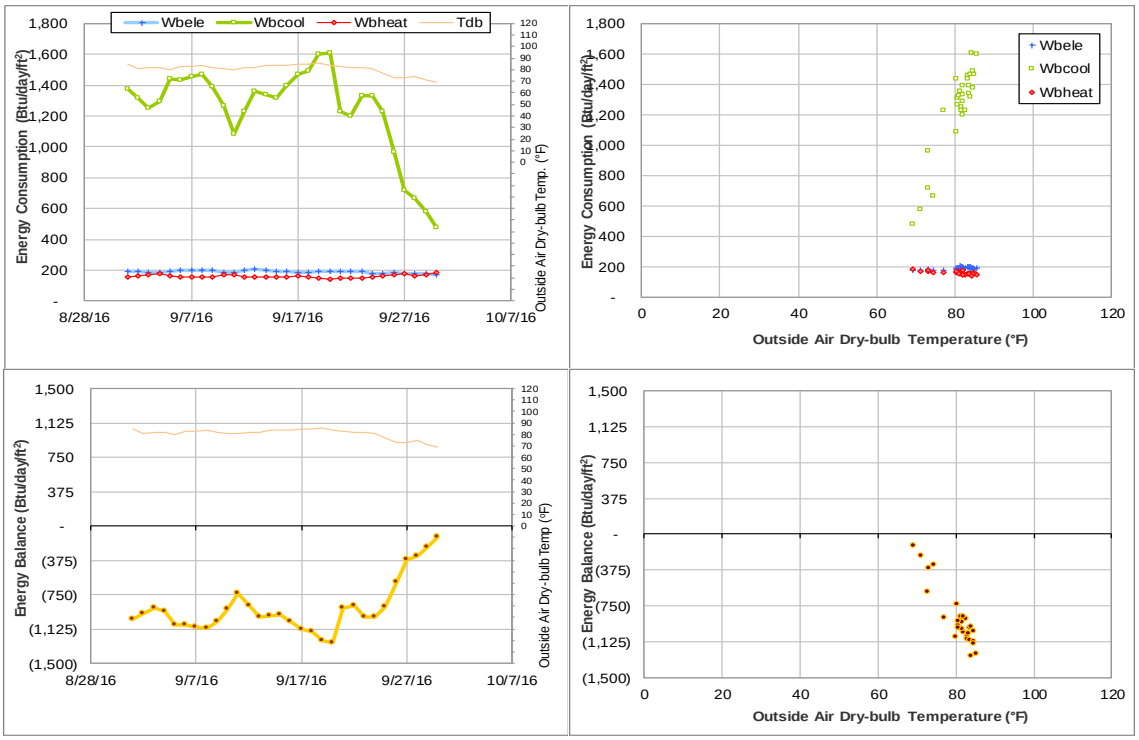


Figure IV-96 Chemistry Building TAMU BLDG # 484 Energy Balance Plot during September 2016

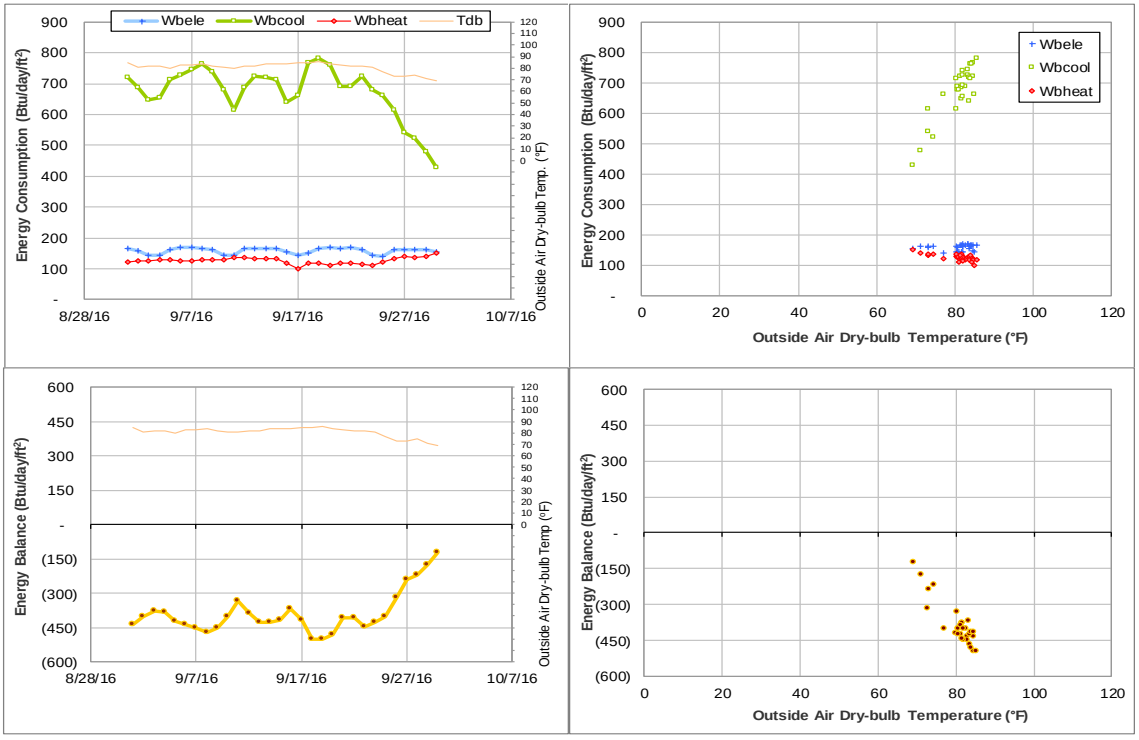


Figure IV-97 Halbouty Geosciences Building TAMU BLDG # 490 Energy Balance Plot during September 2016

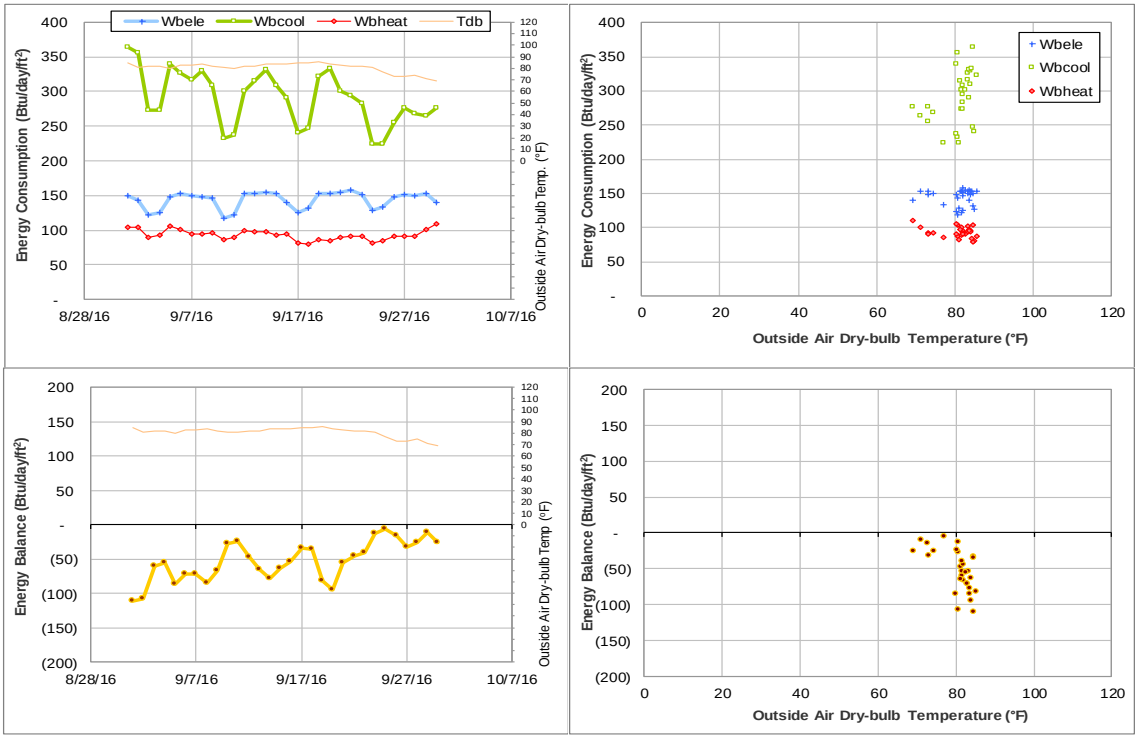


Figure IV-98 Civil Engineering Building TAMU BLDG # 492 Energy Balance Plot during September 2016

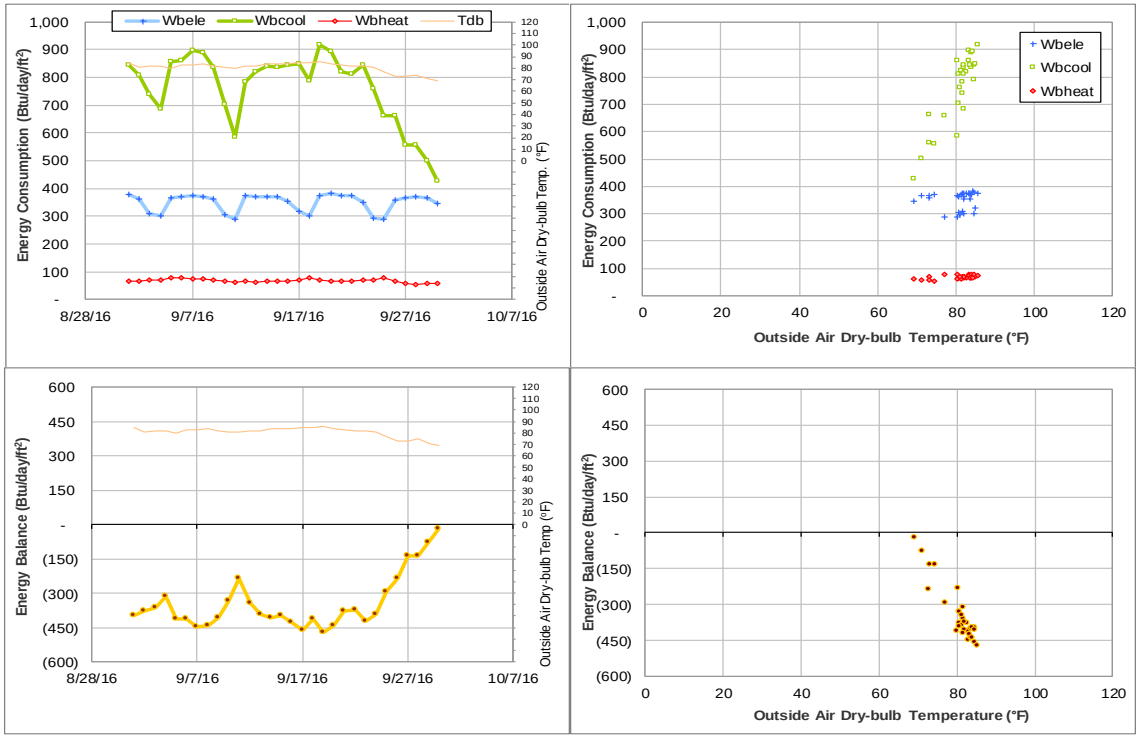


Figure IV-99 Sbisa Dining Hall TAMU BLDG # 495 Energy Balance Plot during September 2016

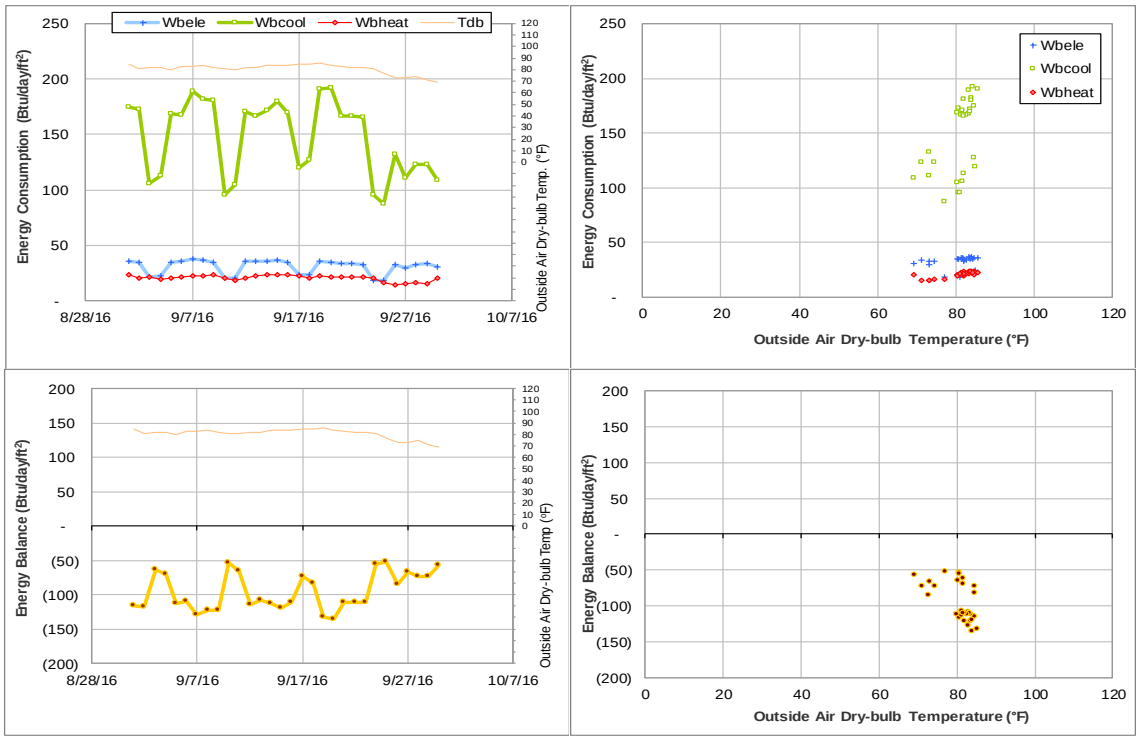


Figure IV-100 Utilities & Energy Services Central Office TAMU BLDG # 496 Energy Balance Plot during September 2016

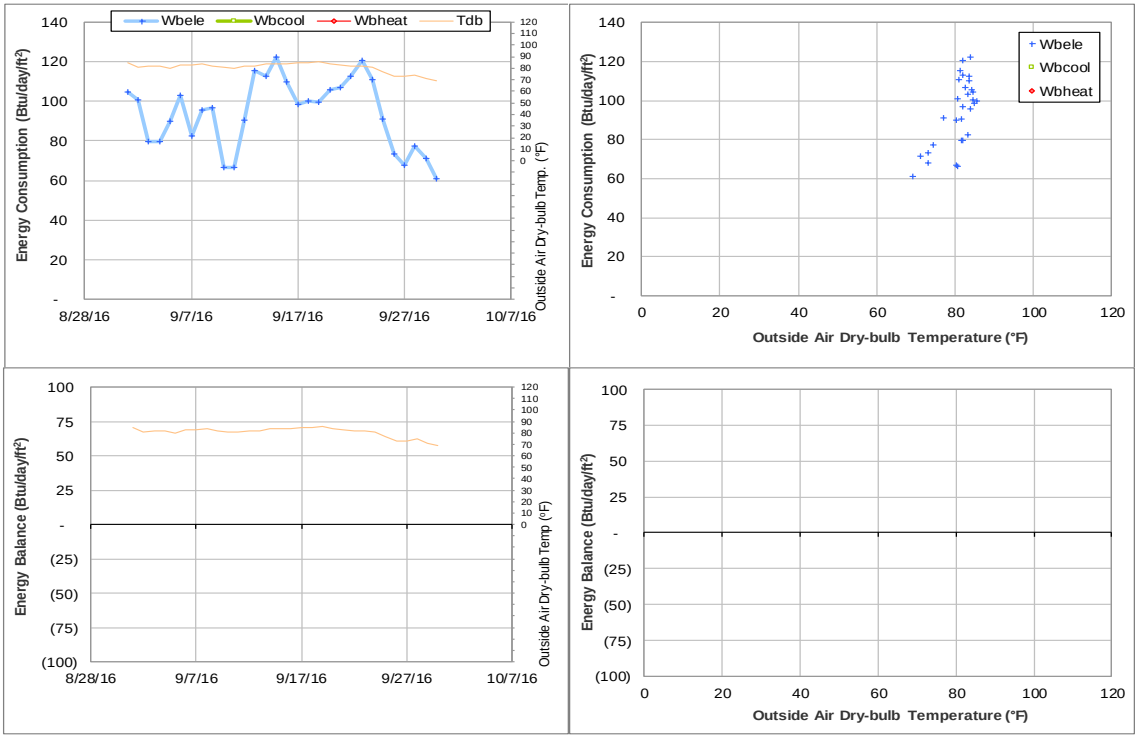


Figure IV-101 Concrete Materials Laboratory TAMU BLDG # 501 Energy Balance Plot during September 2016

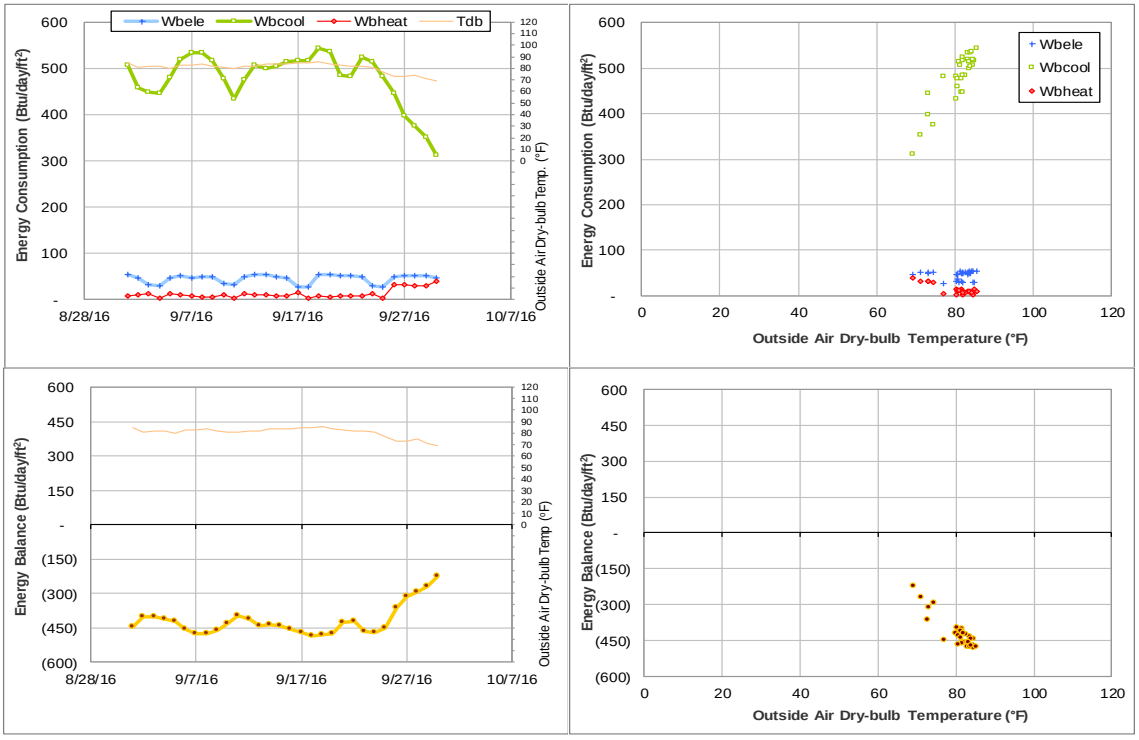


Figure IV-102 Nagle Hall TAMU BLDG # 506 Energy Balance Plot during September 2016

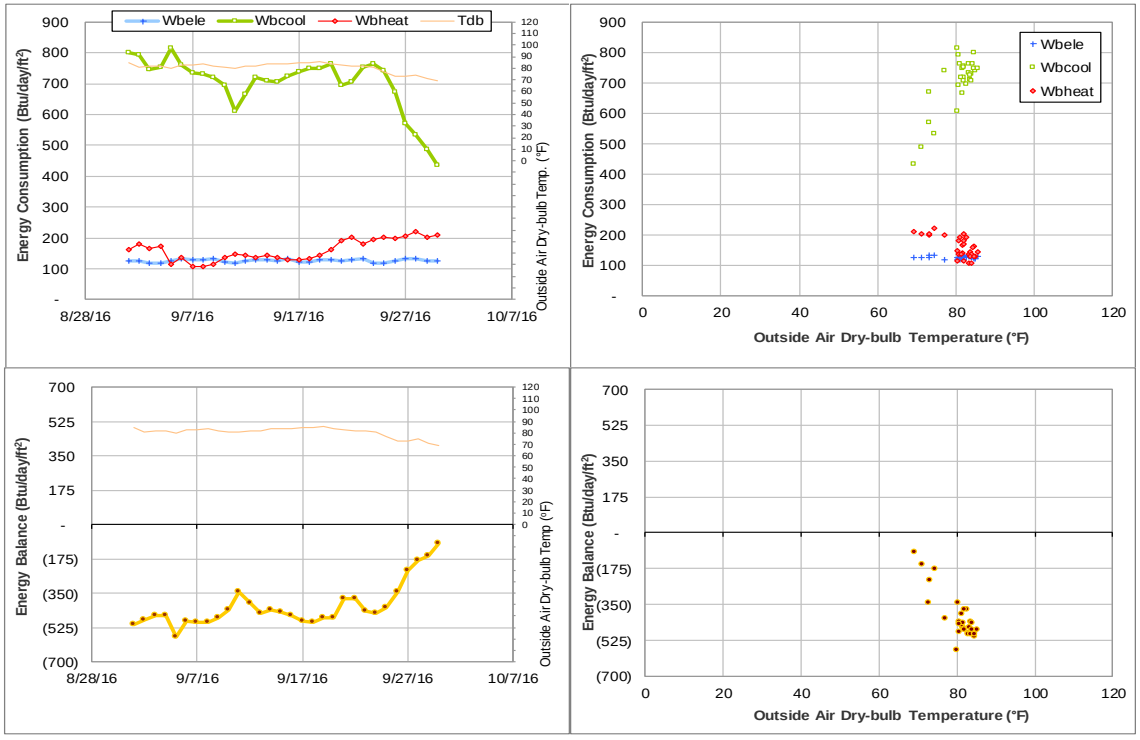


Figure IV-103 Veterinary Medical Science Building TAMU BLDG # 507 Energy Balance Plot during September 2016

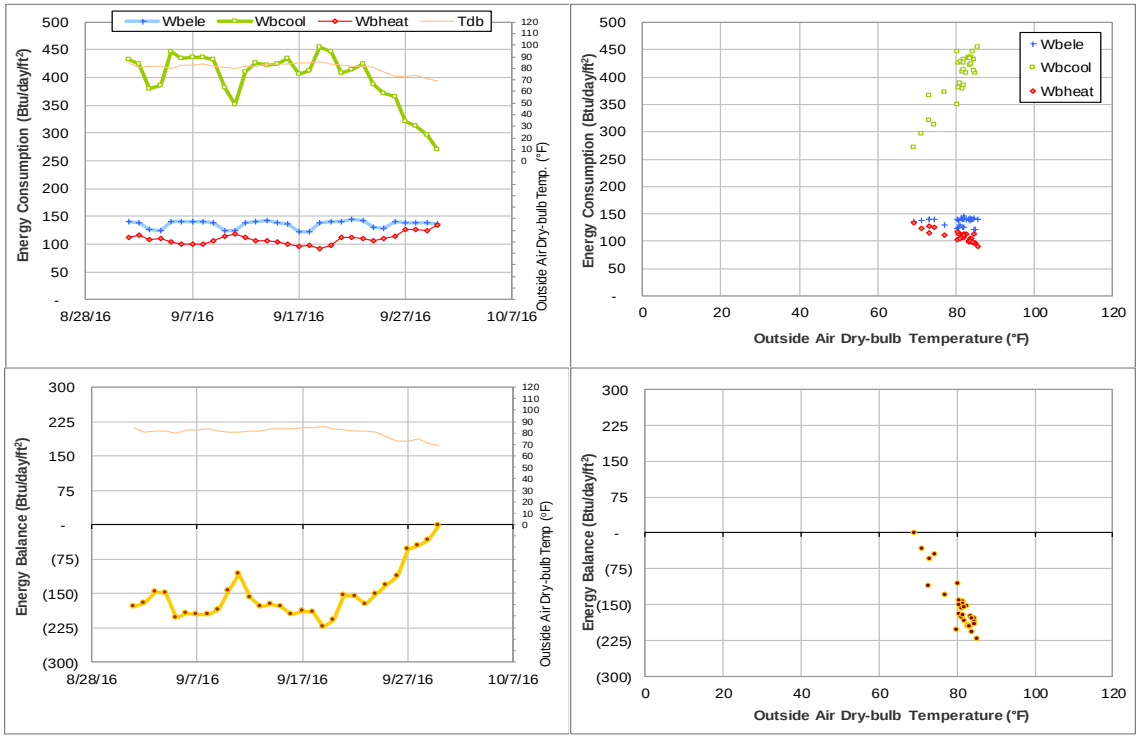


Figure IV-104 Veterinary Teaching Hospital and Med Adm TAMU BLDG # 508 and #1026 Energy Balance Plot during September 2016

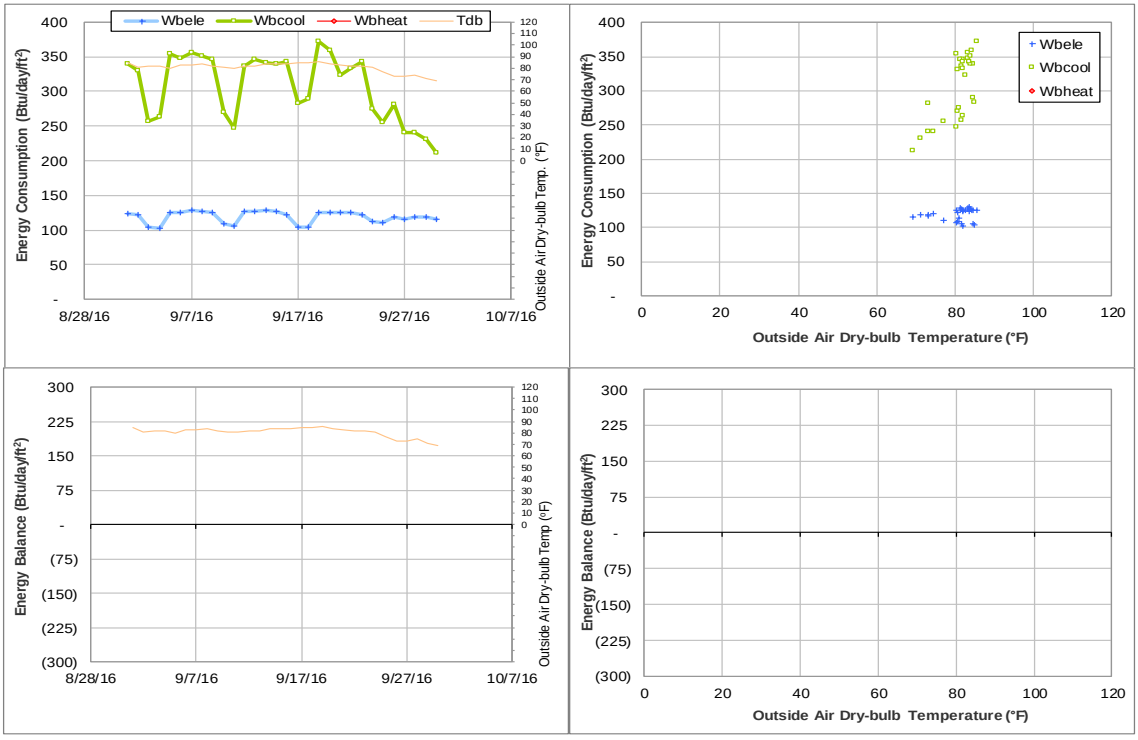


Figure IV-105 Veterinary Teaching Hospital TAMU BLDG # 508 Energy Balance Plot during August 2013

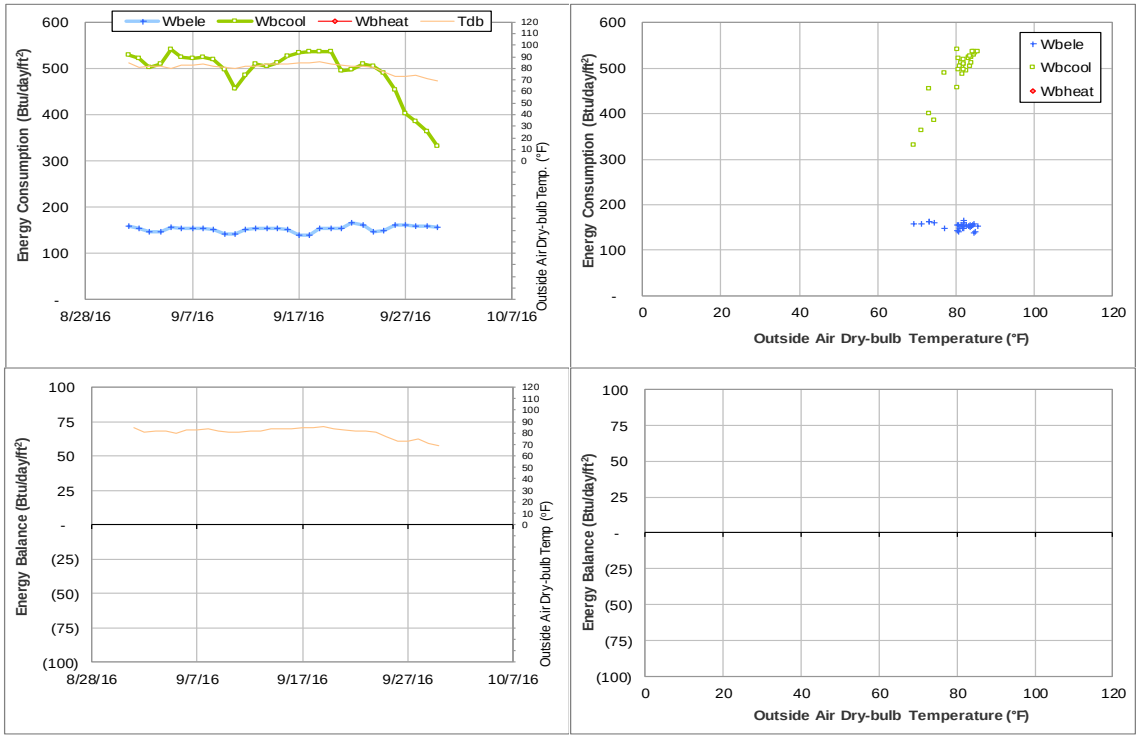


Figure IV-106 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during September 2016

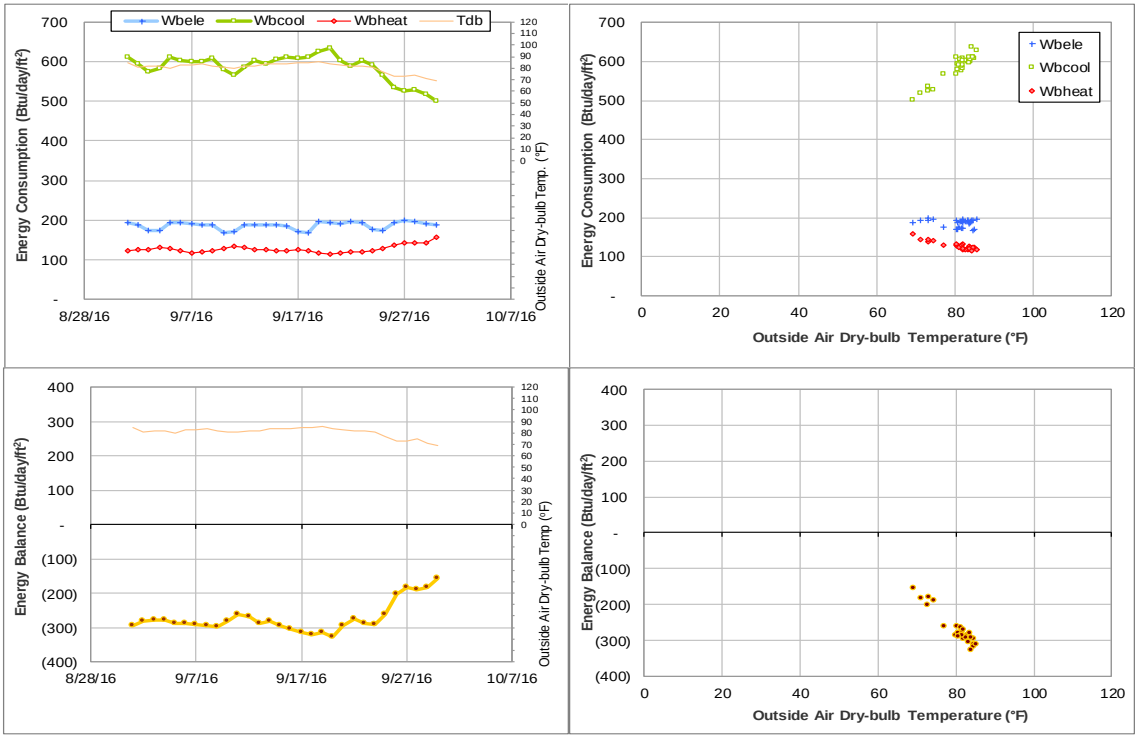


Figure IV-107 Heep Laboratory Building TAMU BLDG # 511 Energy Balance Plot during September 2016

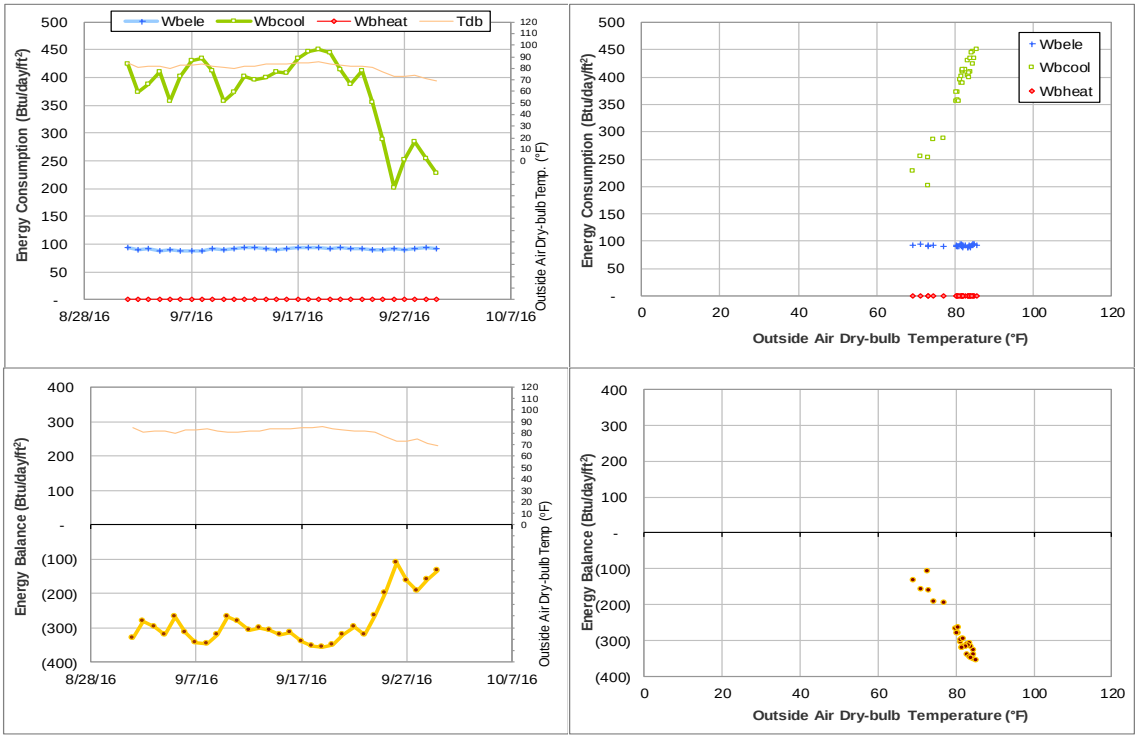


Figure IV-108 All Faiths Chapel TAMU BLDG # 512 Energy Balance Plot during September 2016

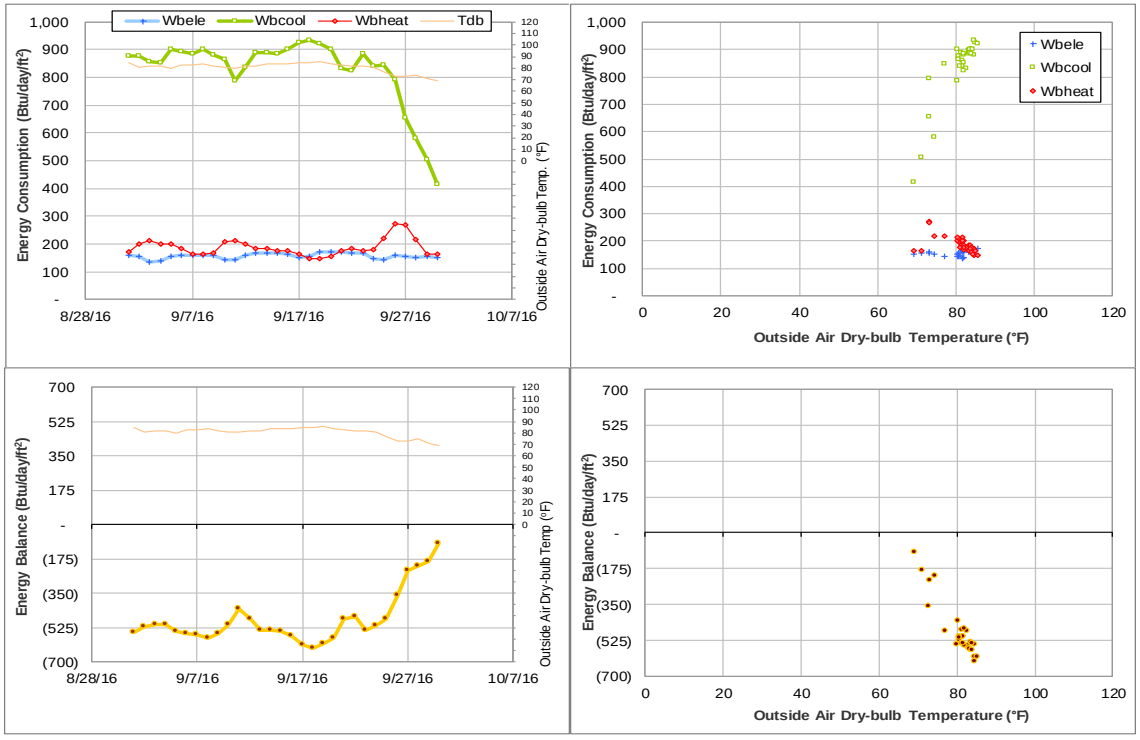


Figure IV-109 Doherty Building TAMU BLDG # 513 Energy Balance Plot during September 2016

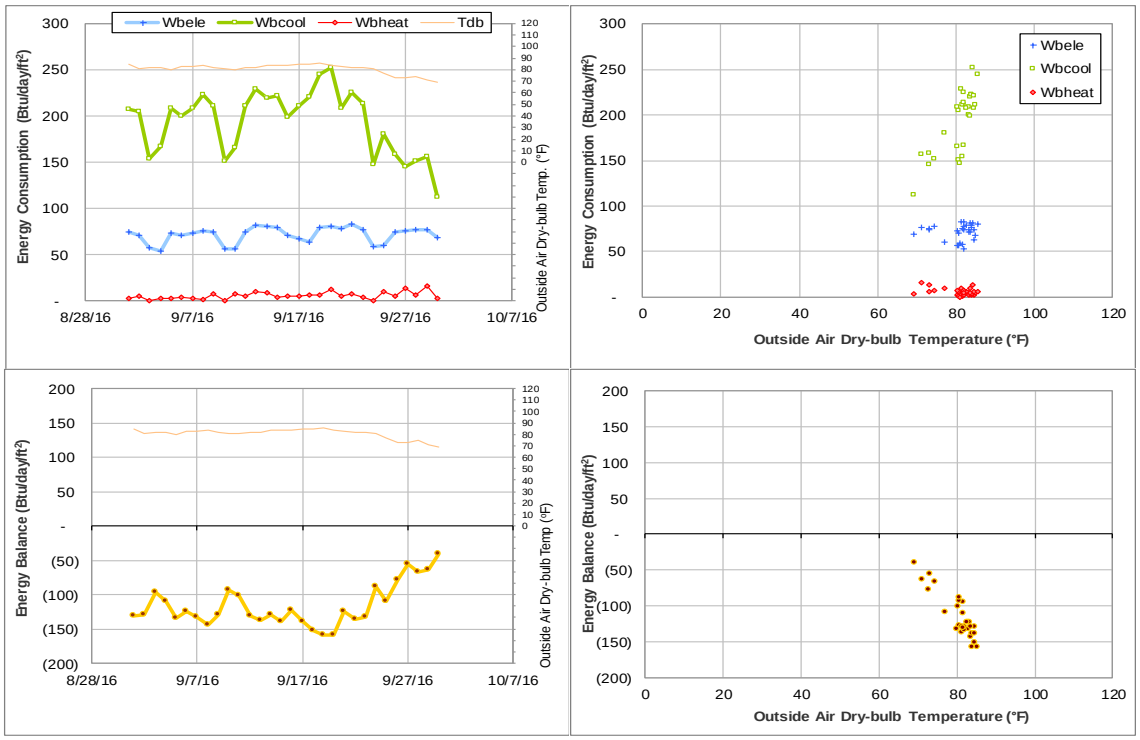


Figure IV-110 Munnerlyn Astronomy & Space Sciences Engineering TAMU BLDG # 514 Energy Balance Plot during September 2016

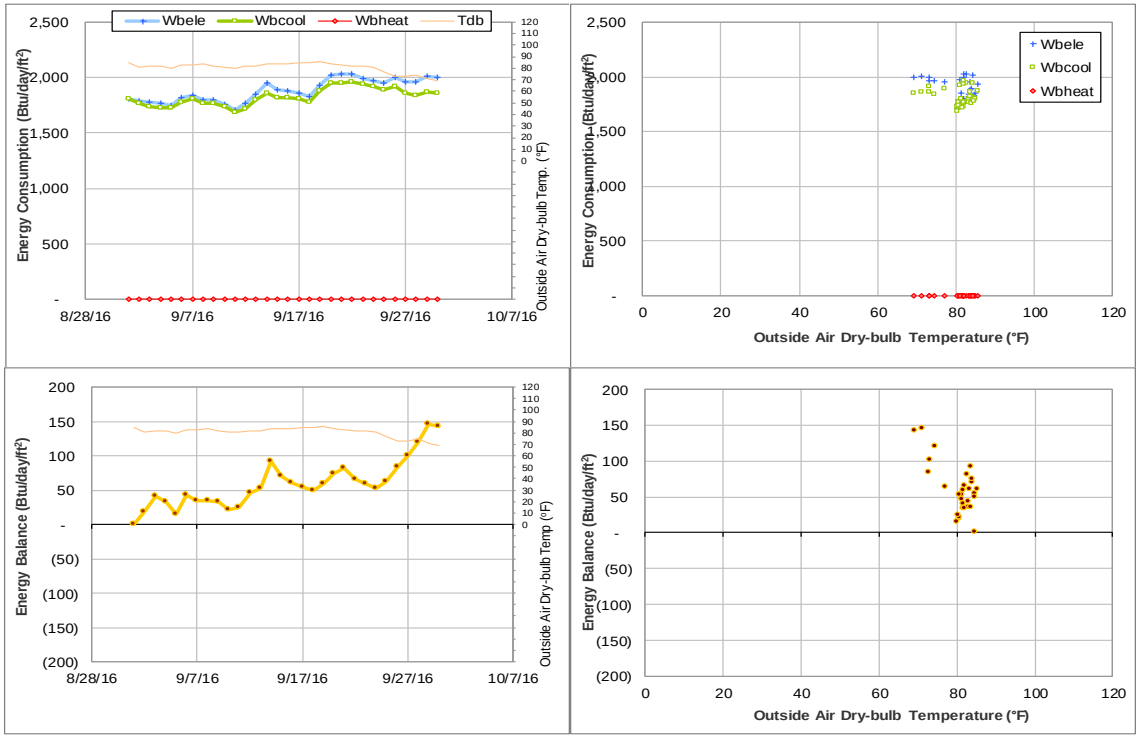


Figure IV-111 Computing Services Center TAMU BLDG # 516 Energy Balance Plot during September 2016

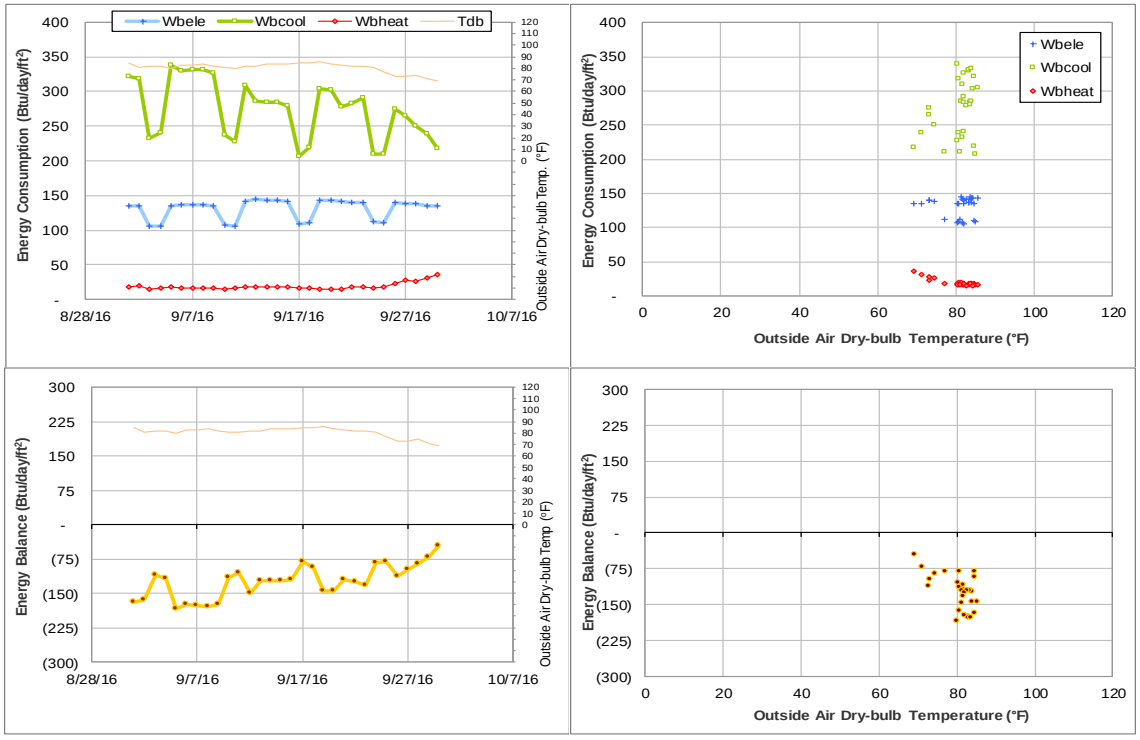


Figure IV-112 Beutel Health Center TAMU BLDG # 520 Energy Balance Plot during September 2016

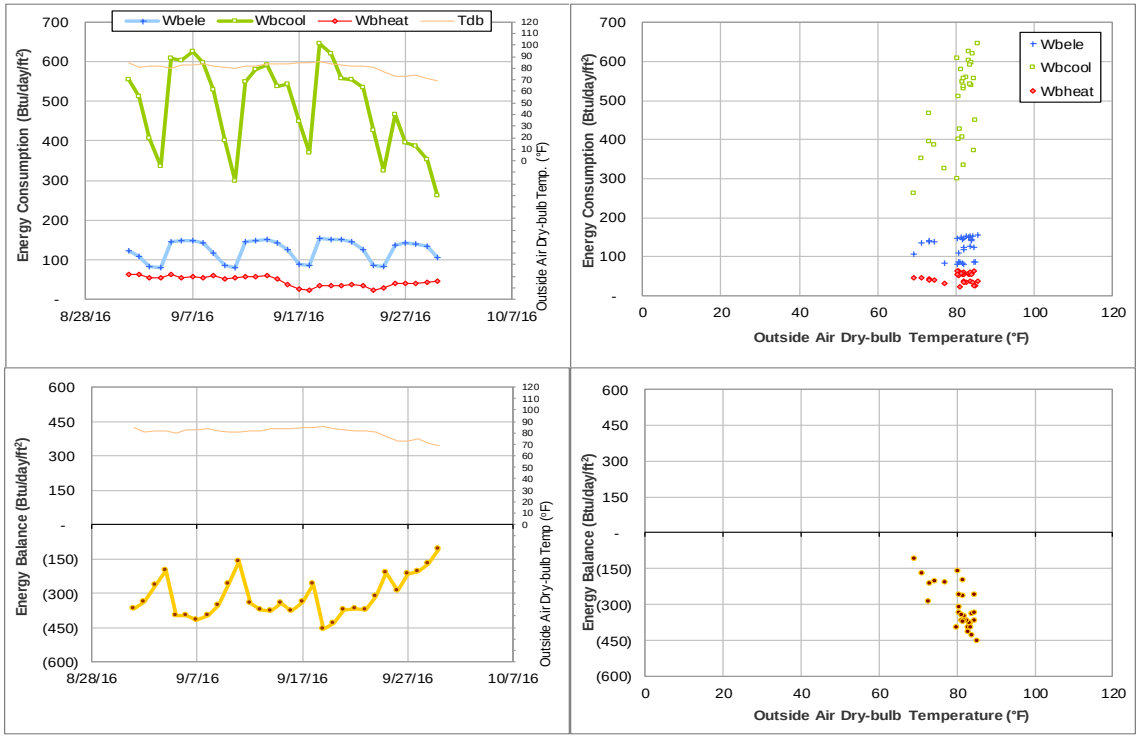


Figure IV-113 Heldenfels Hall TAMU BLDG # 521 Energy Balance Plot during September 2016

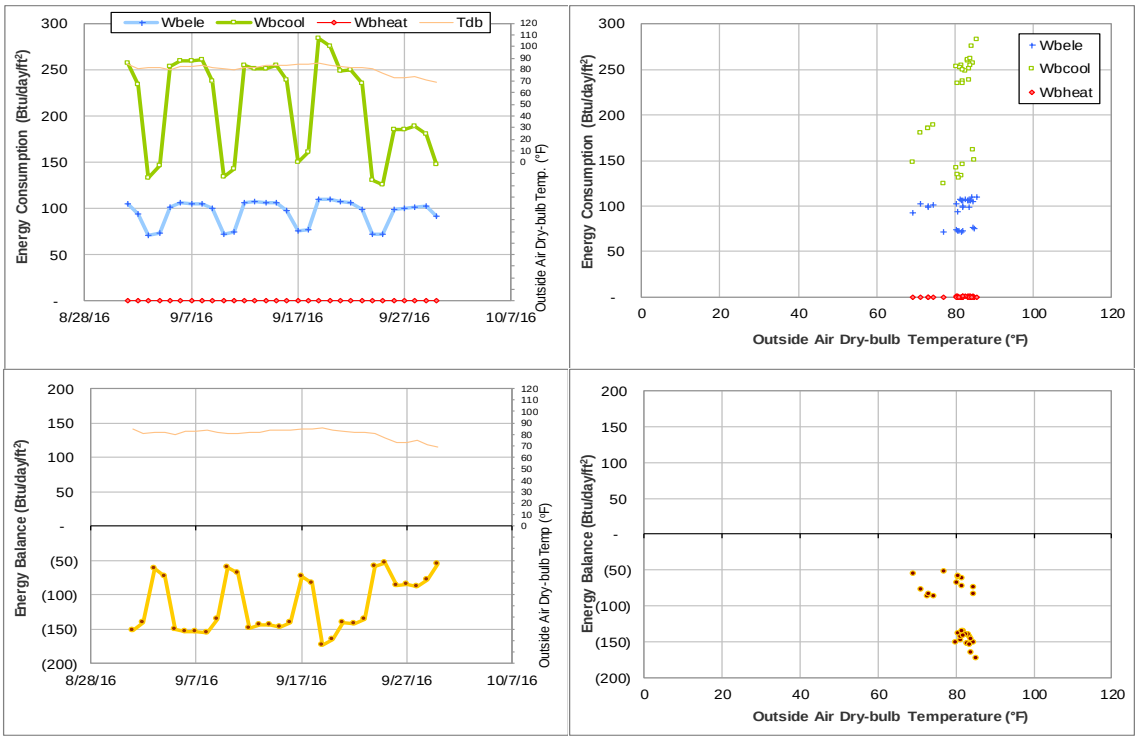


Figure IV-114 Blocker building TAMU BLDG # 524 Energy Balance Plot during September 2016

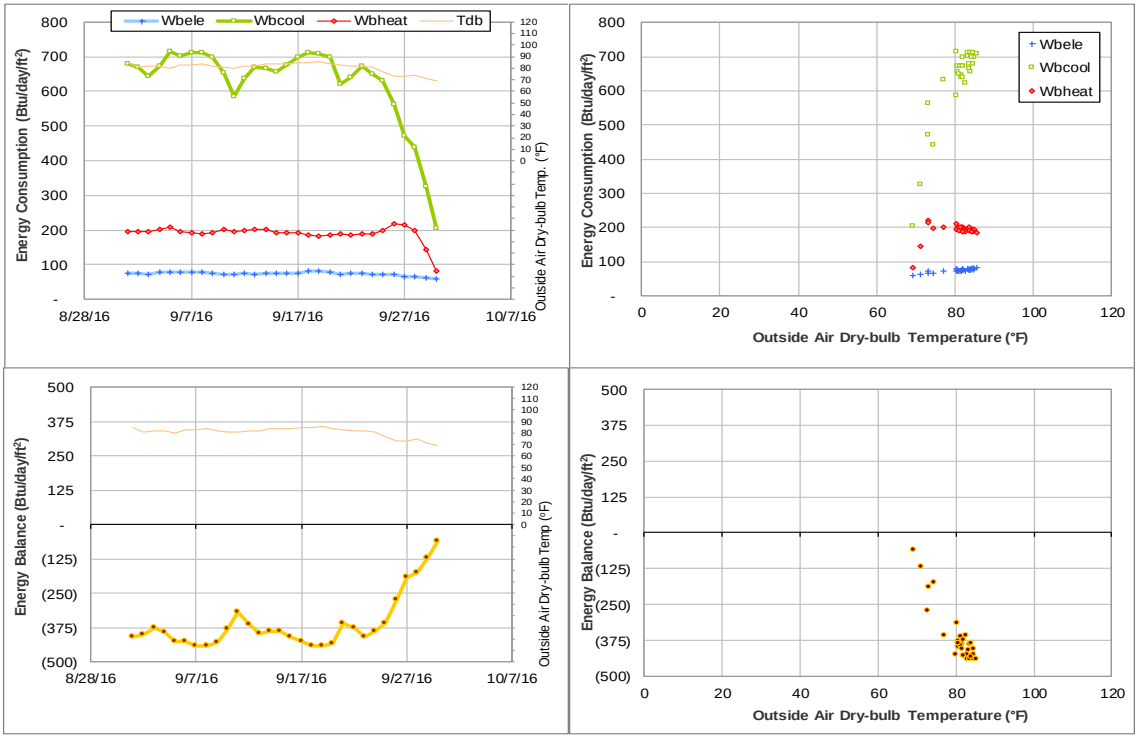


Figure IV-115 Clements Residence Hall TAMU BLDG # 548 Energy Balance Plot during September 2016

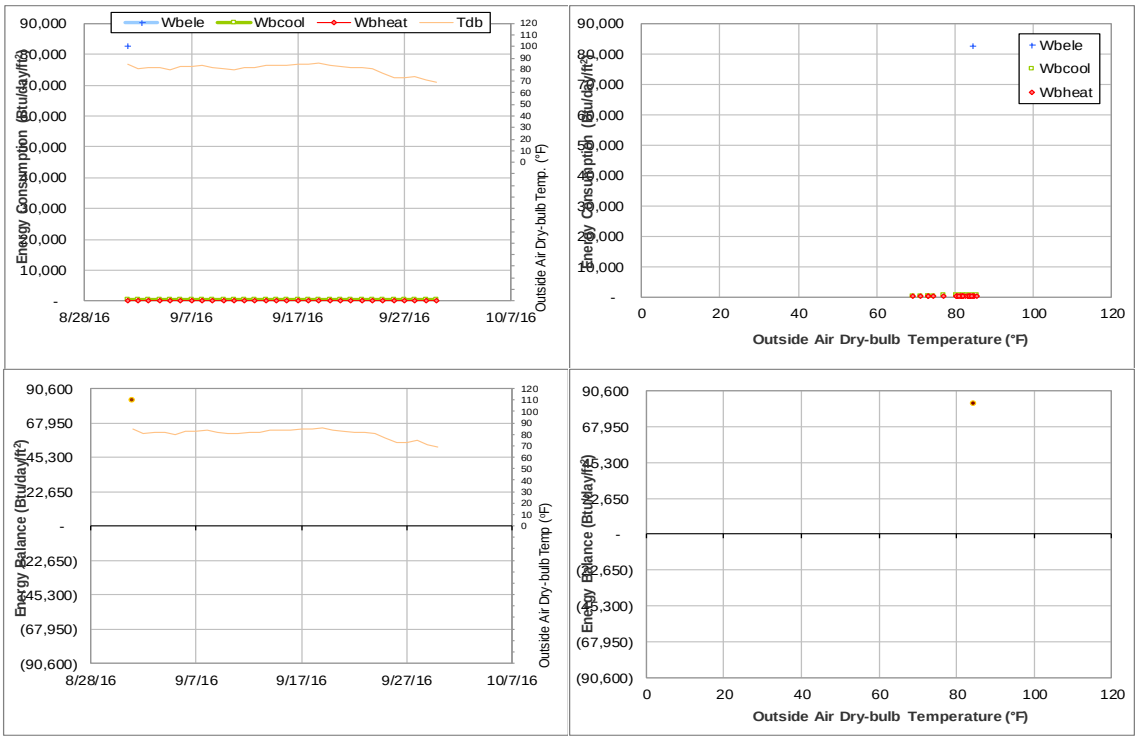


Figure IV-116 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during September 2016

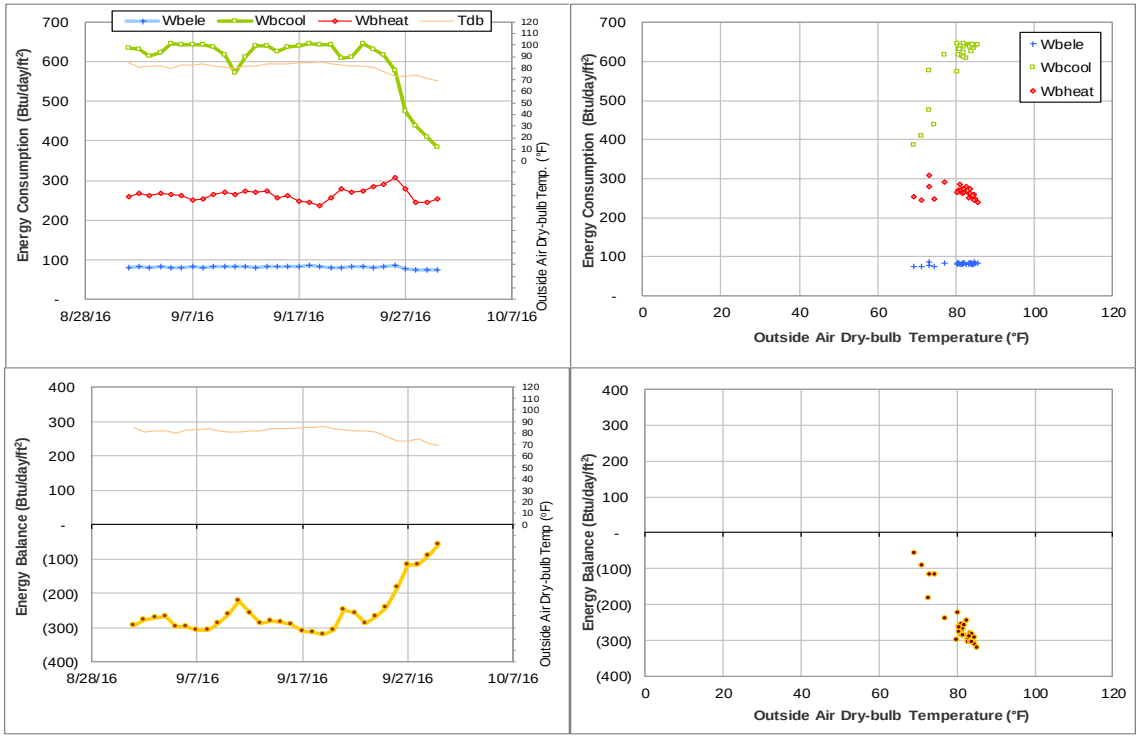


Figure IV-117 McFadden Residence Hall TAMU BLDG # 550 Energy Balance Plot during September 2016

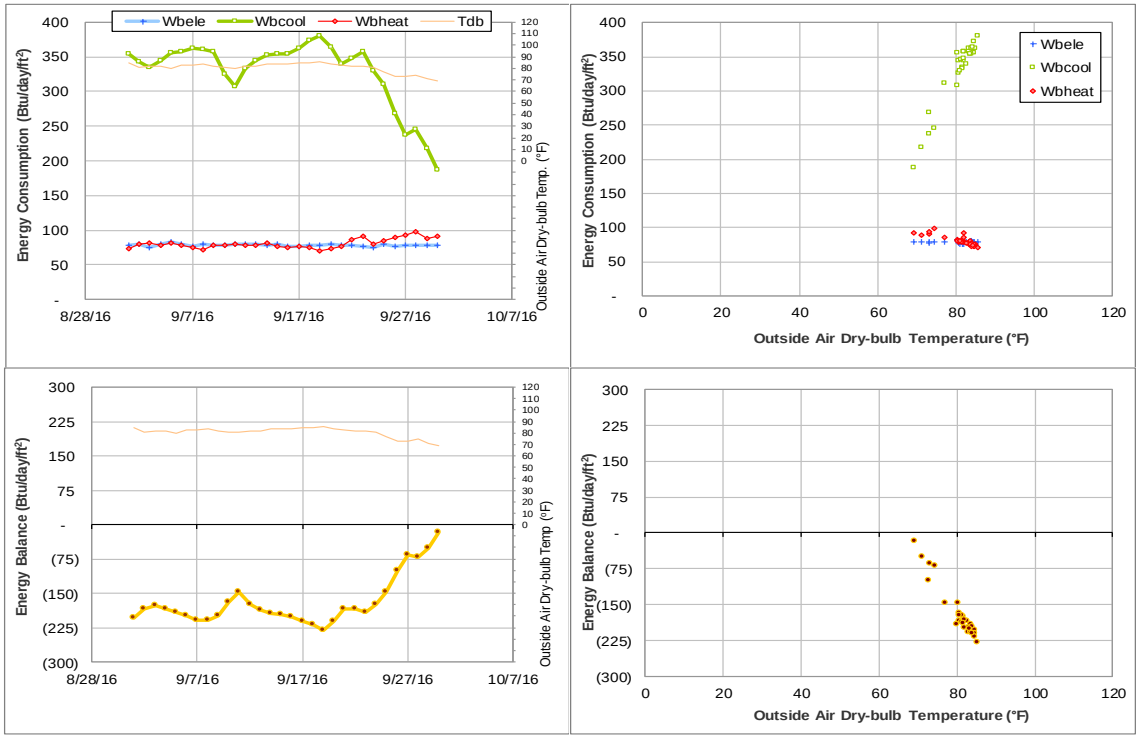


Figure IV-118 Neeley Residence Hall TAMU BLDG # 652 Energy Balance Plot during September 2016

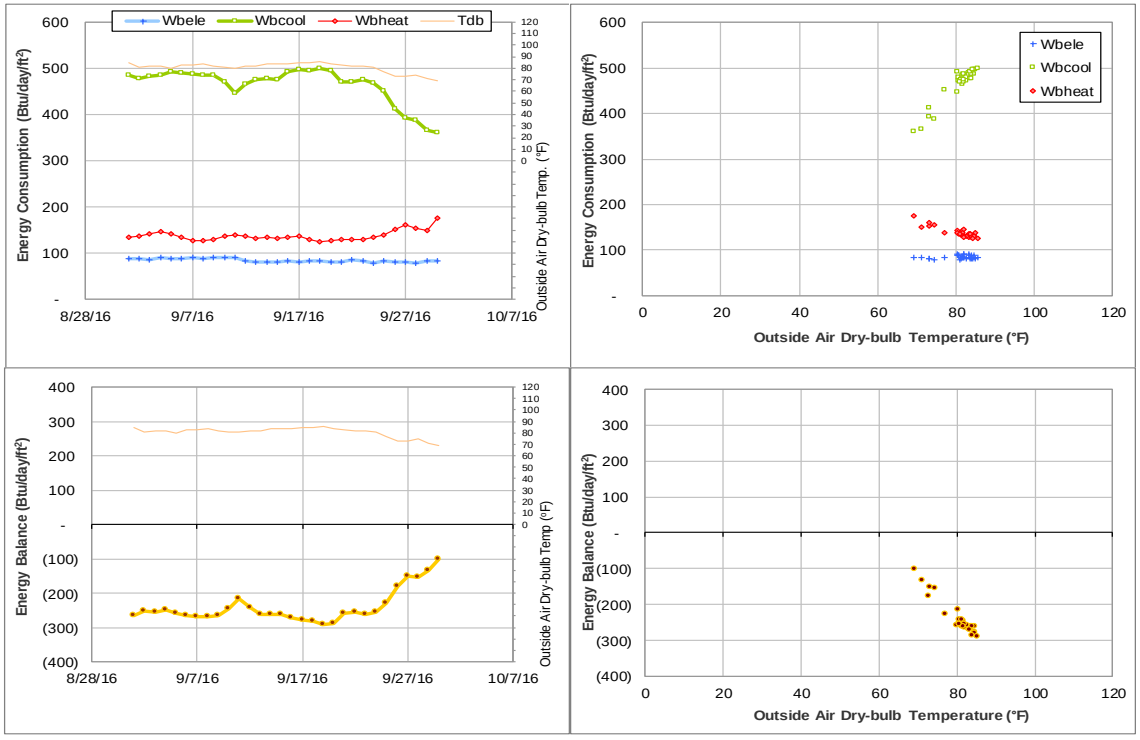


Figure IV-119 Hobby Residence Hall TAMU BLDG # 653 Energy Balance Plot during September 2016

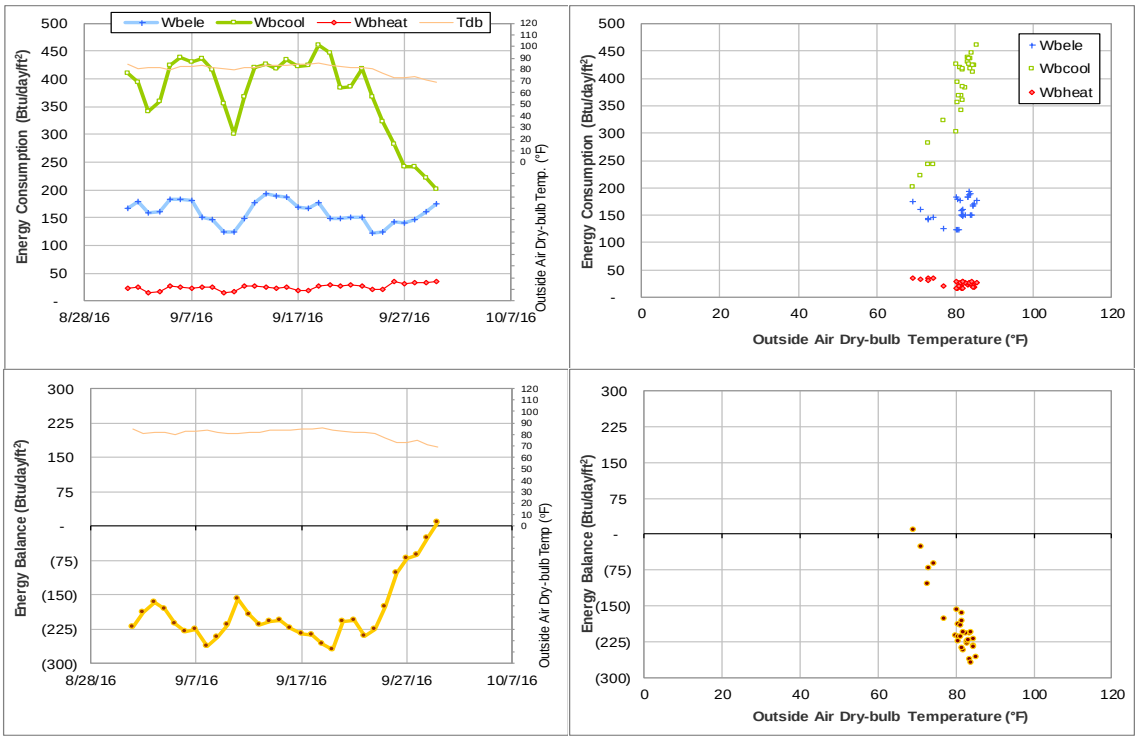


Figure IV-120 Wisenbaker Engineering Research Center TAMU BLDG # 682 Energy Balance Plot during September 2016

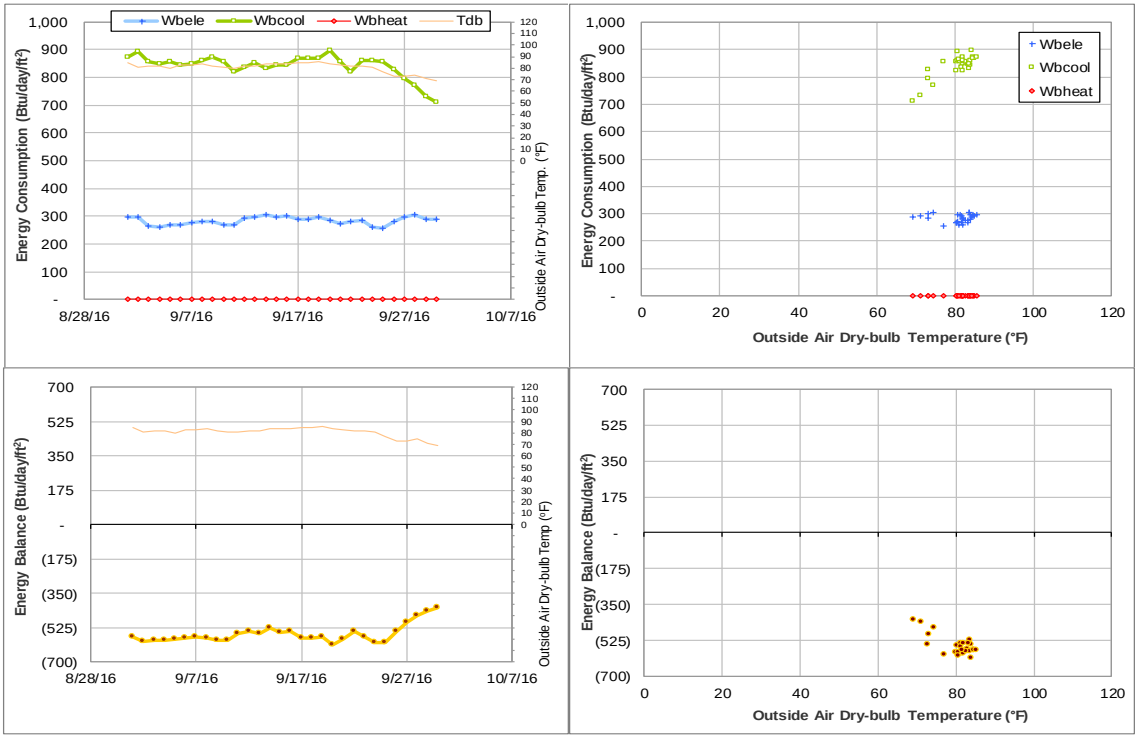


Figure IV-121 McNew Laboratory TAMU BLDG # 740 Energy Balance Plot during September 2016

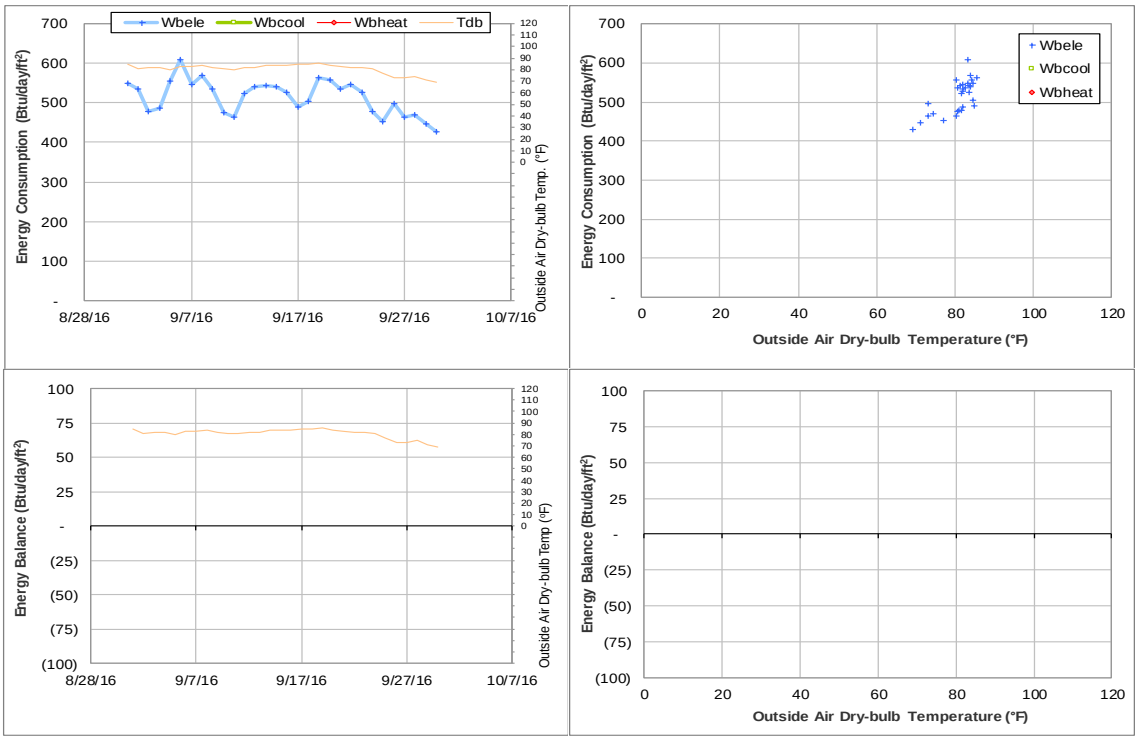


Figure IV-122 Soil Testing Labs TAMU BLDG # 806 Energy Balance Plot during September 2016

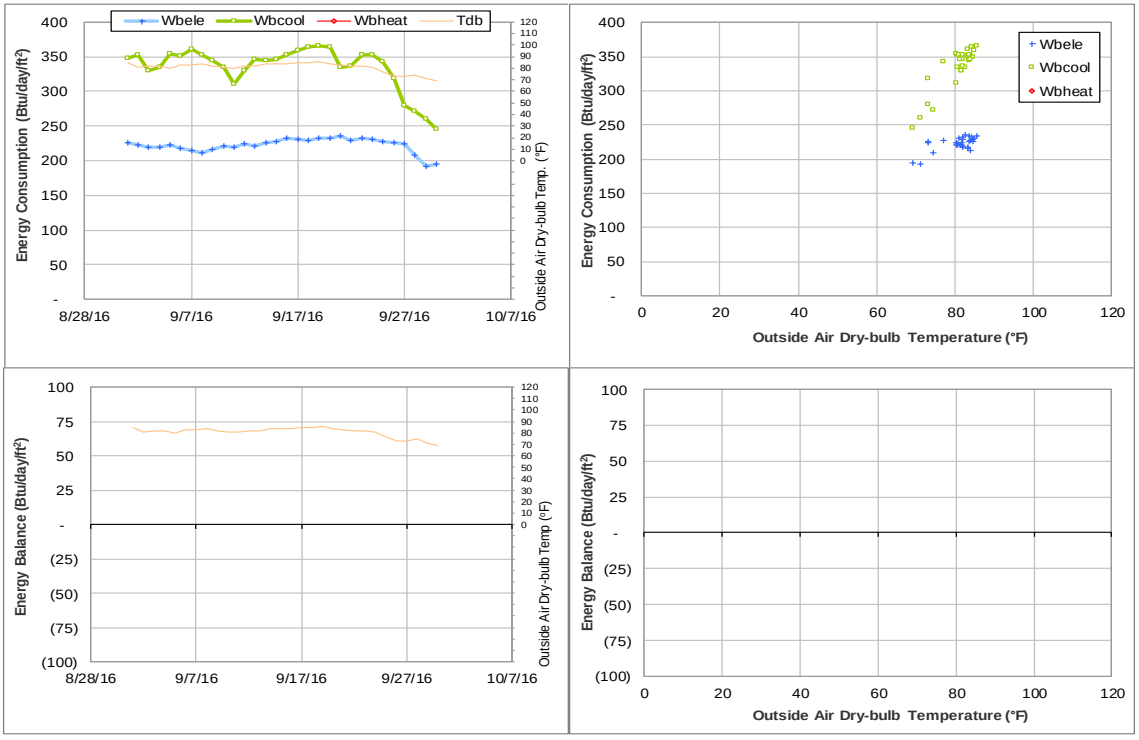


Figure IV-123 Entomology Research Lab TAMU BLDG # 815 Energy Balance Plot during September 2016

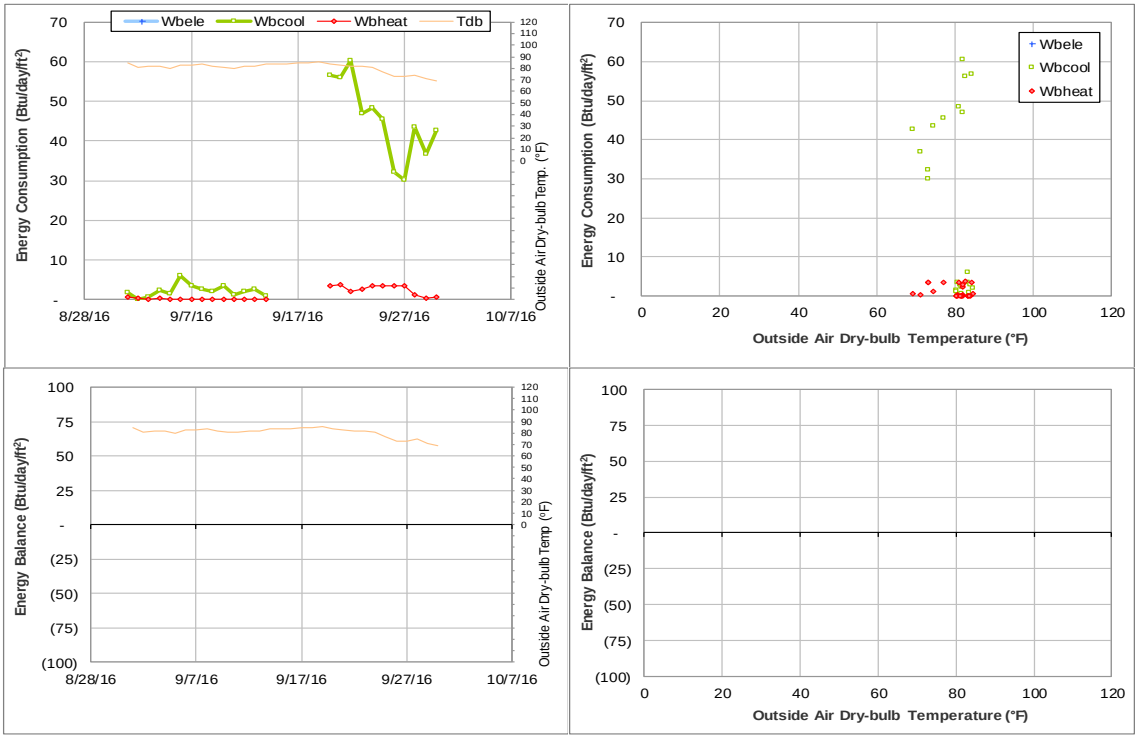


Figure IV-124 TVMC-Small Animal Building TAMU BLDG # 880 Energy Balance Plot during September 2016

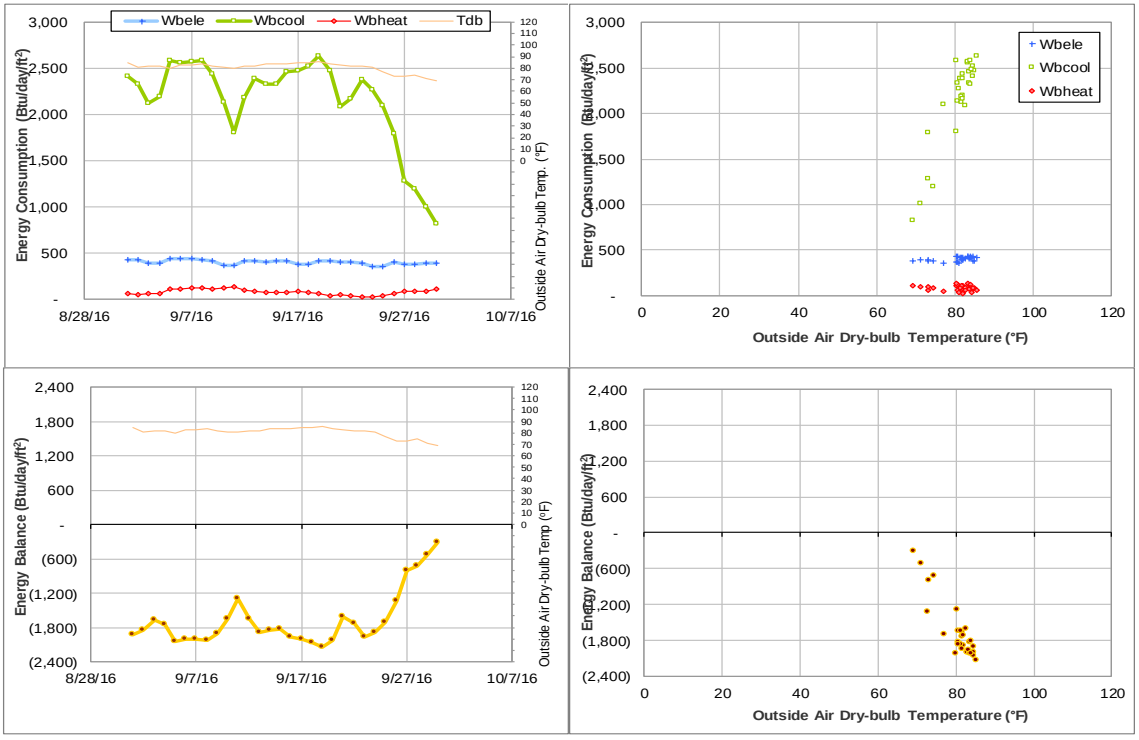


Figure IV-125 Laboratory Animal Care Building TAMU BLDG # 972 Energy Balance Plot during September 2016

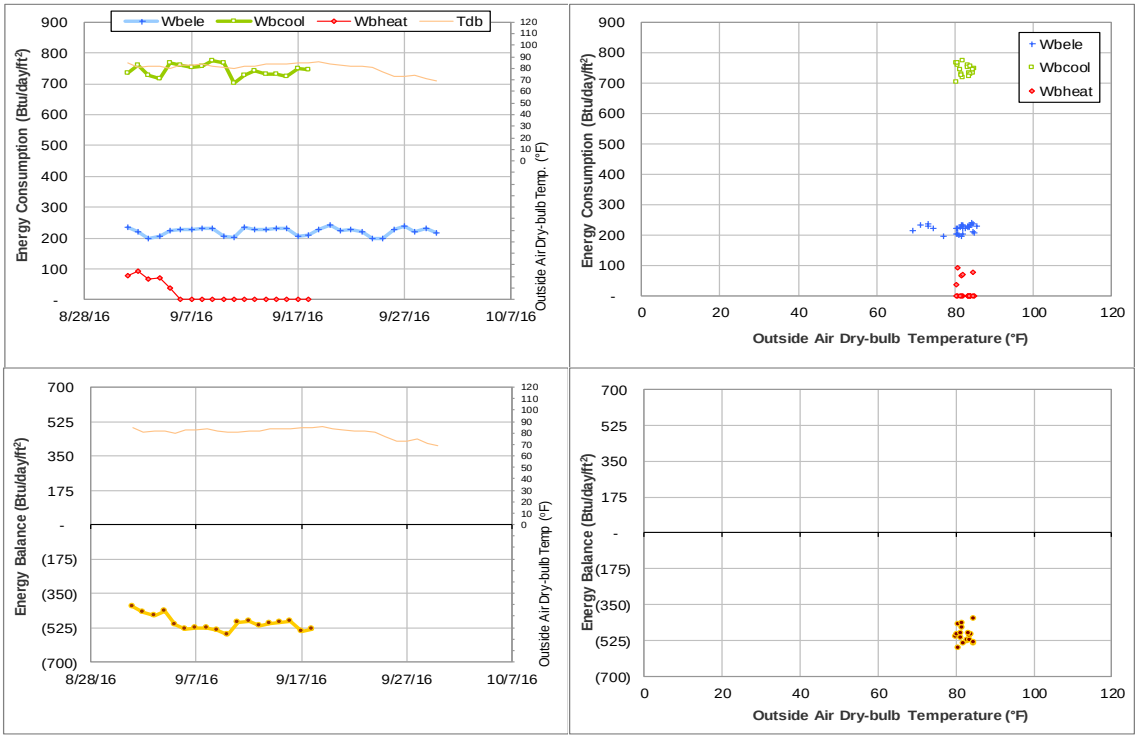


Figure IV-126 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during September 2016

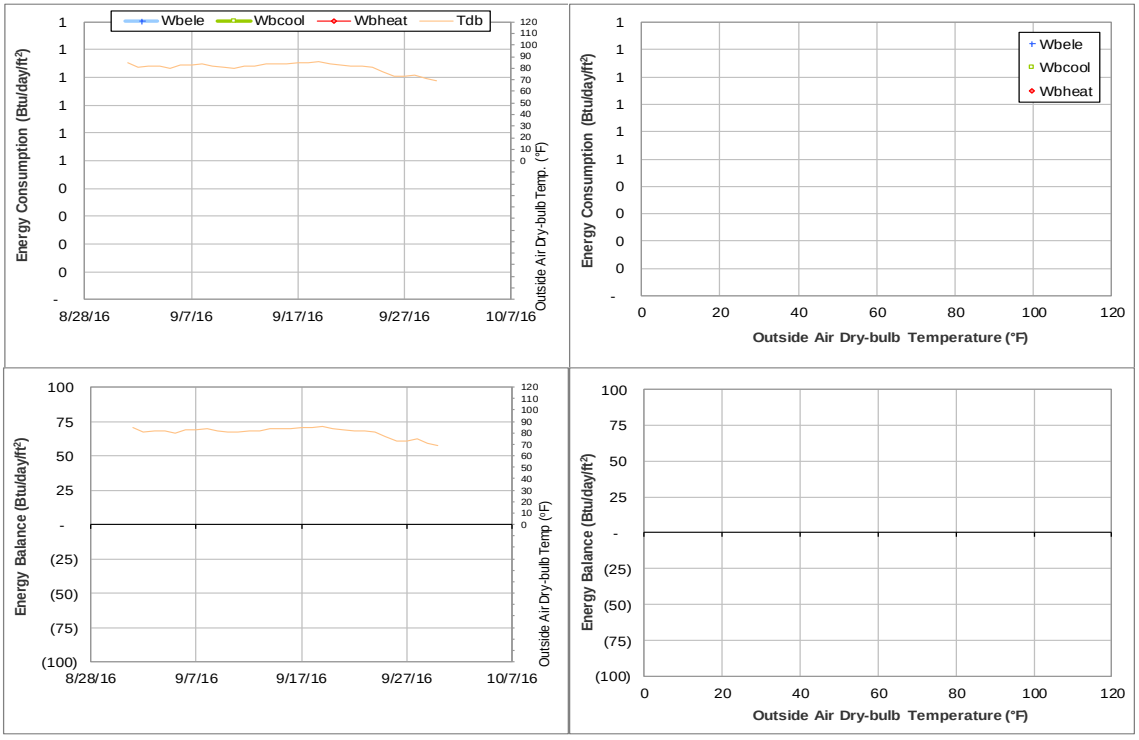


Figure IV-127 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during September 2016

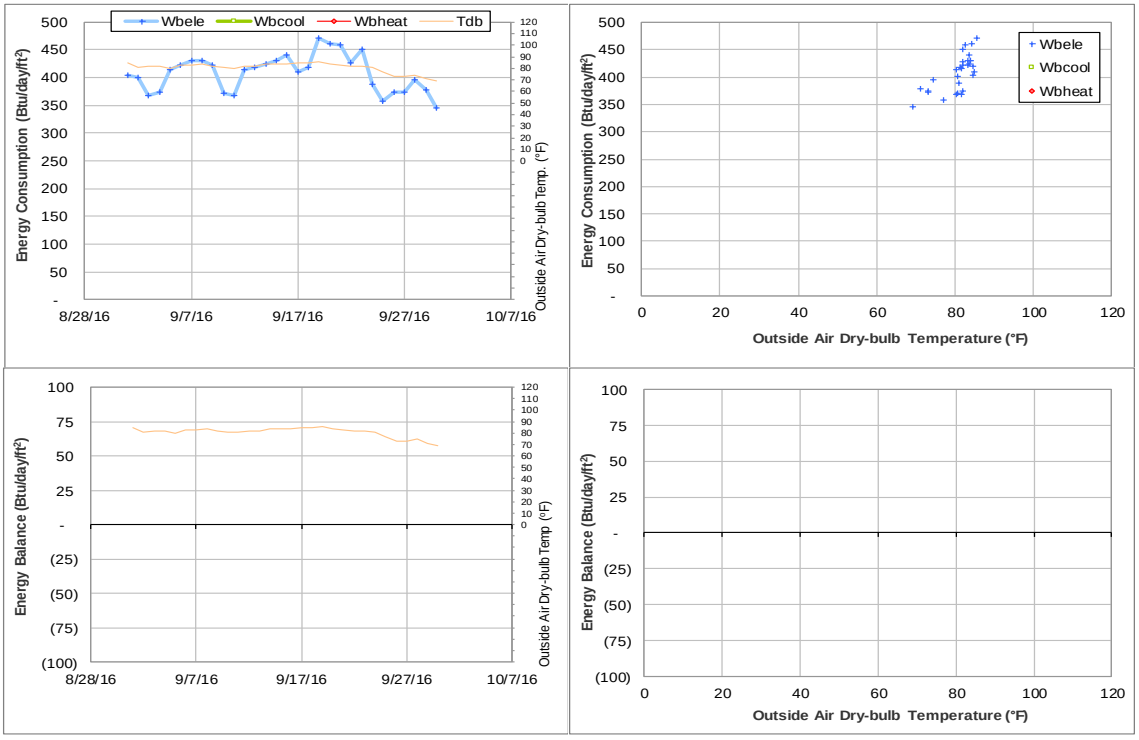


Figure IV-128 Forest Science Laboratory Building TAMU BLDG # 1042 Energy Balance Plot during September 2016

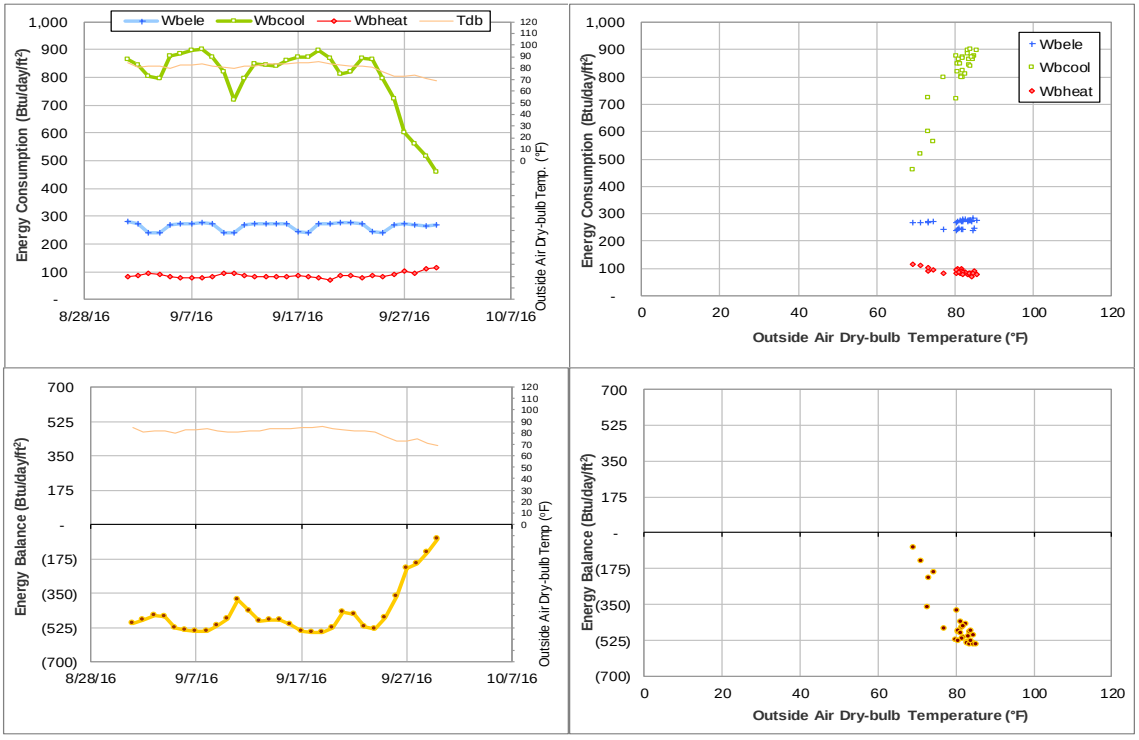


Figure IV-129 Veterinary Small Animal Hospital TAMU BLDG # 1085 Energy Balance Plot during September 2016

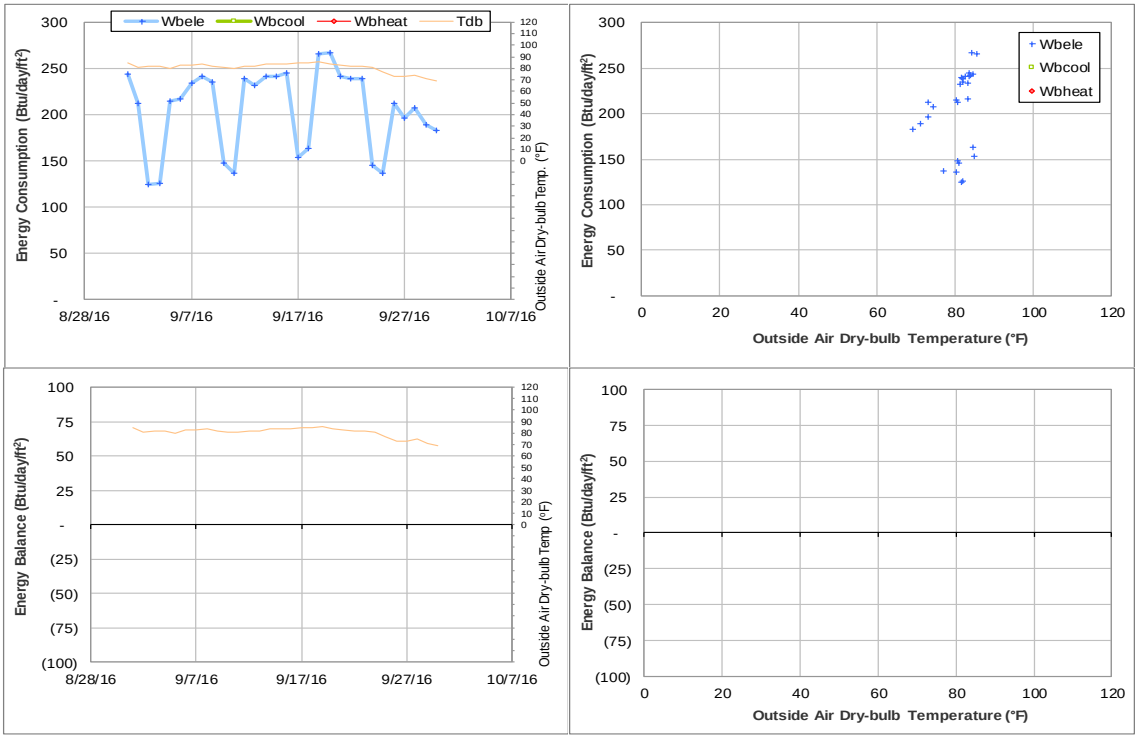


Figure IV-130 Utilities Energy Office Annex TAMU BLDG # 1089 Energy Balance Plot during September 2016

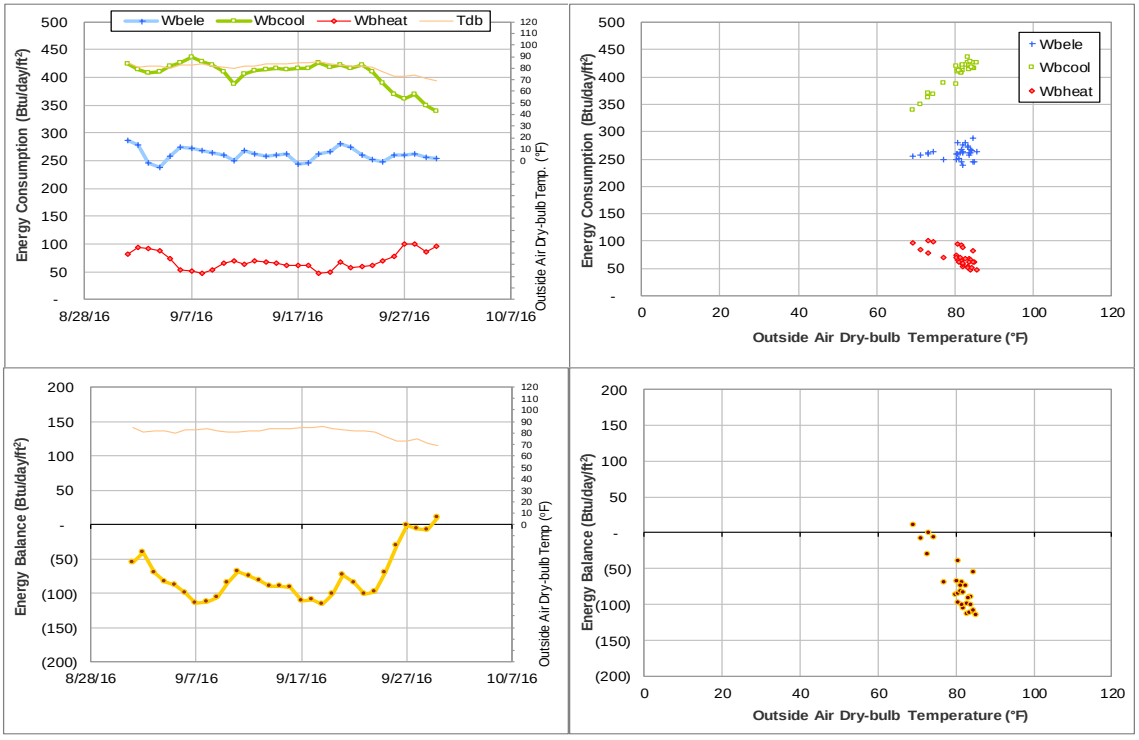


Figure IV-131 Biological Control Facility TAMU BLDG # 1146 Energy Balance Plot during September 2016

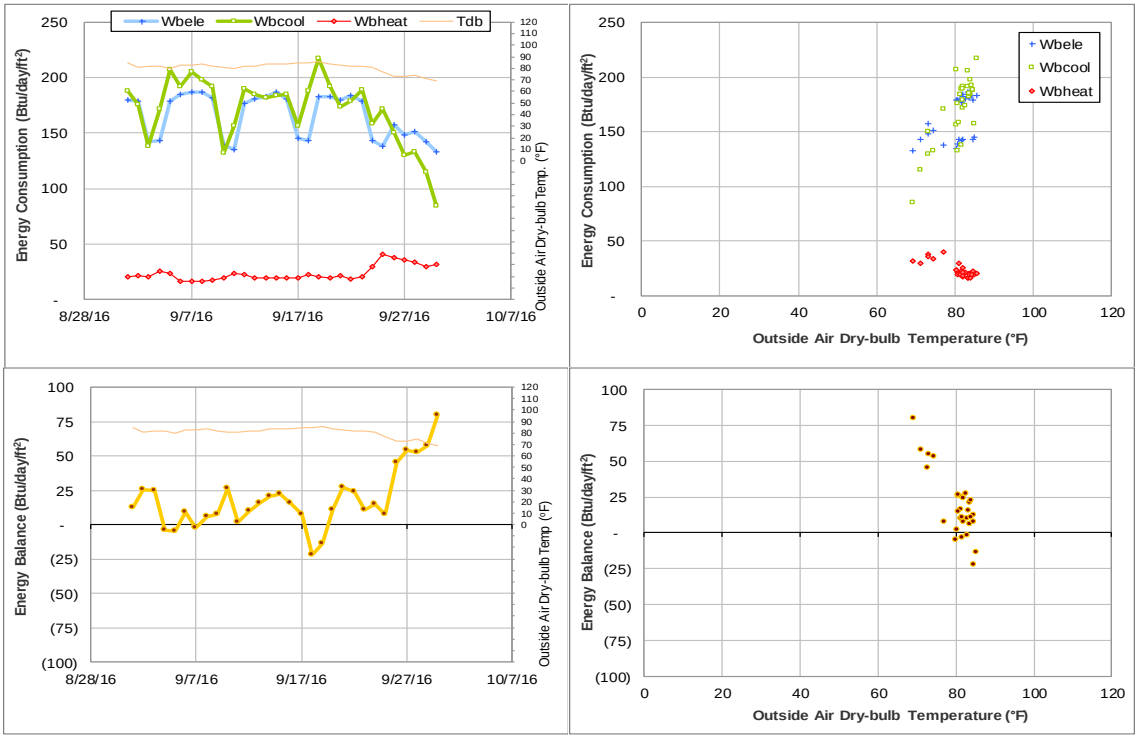


Figure IV-132 Physical Plant Administration & Shops TAMU BLDG # 1156 Energy Balance Plot during September 2016

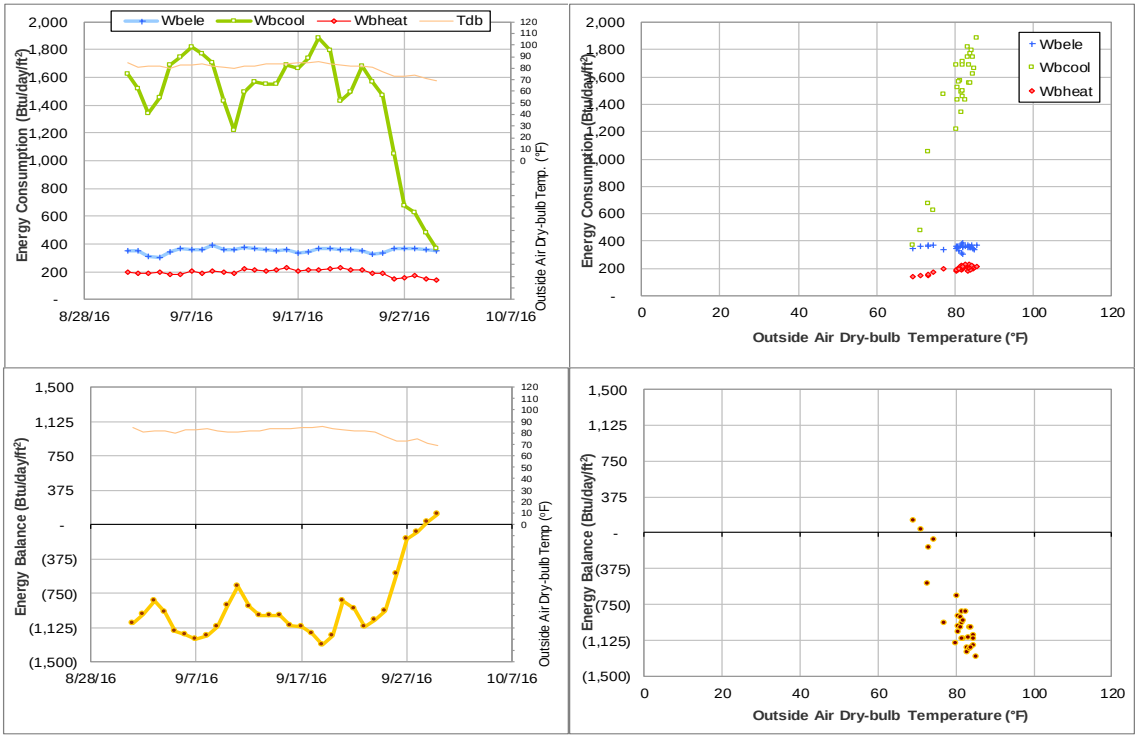


Figure IV-133 Veterinary Anatomic Pathology TAMU BLDG # 1184 Energy Balance Plot during September 2016

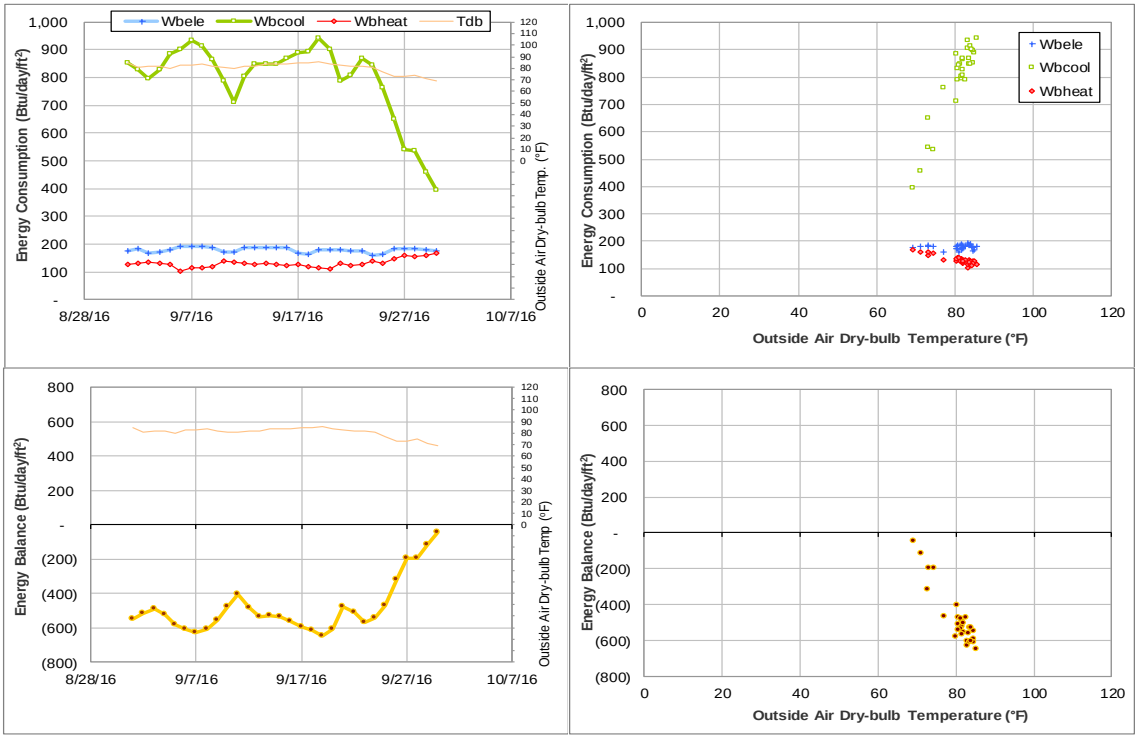


Figure IV-134 Veterinary Large Animal Hospital TAMU BLDG # 1194 Energy Balance Plot during September 2016

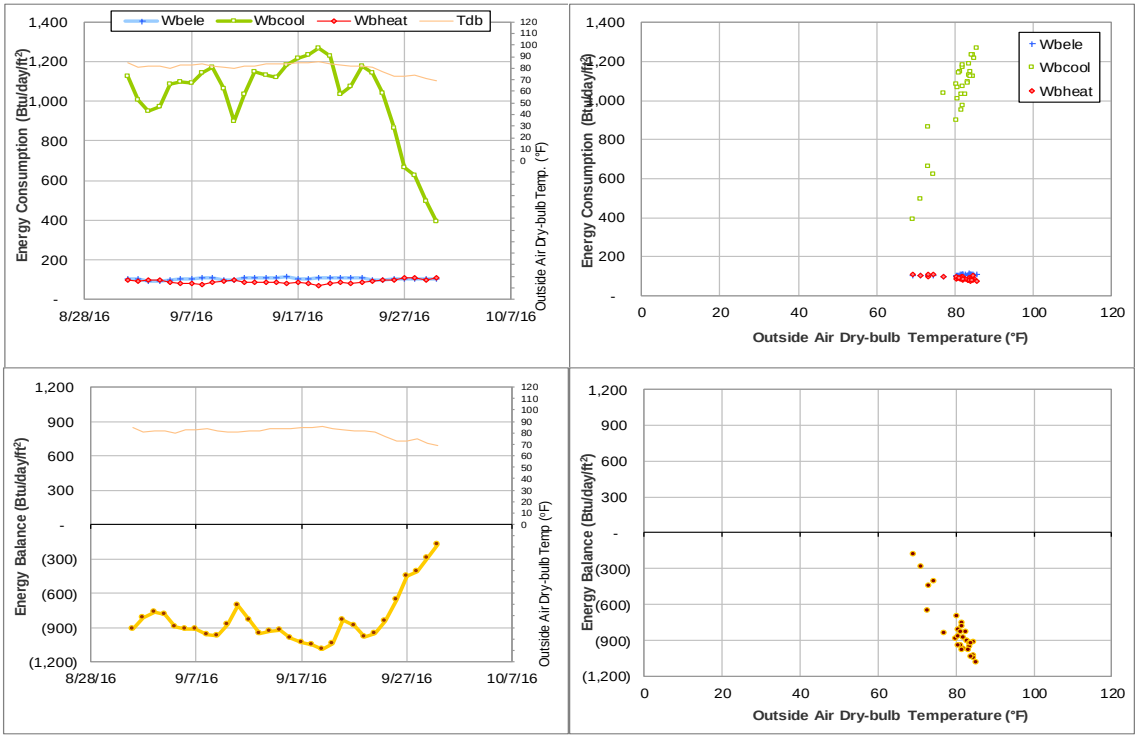


Figure IV-135 Veterinary Research Building TAMU BLDG # 1197 Energy Balance Plot during September 2016

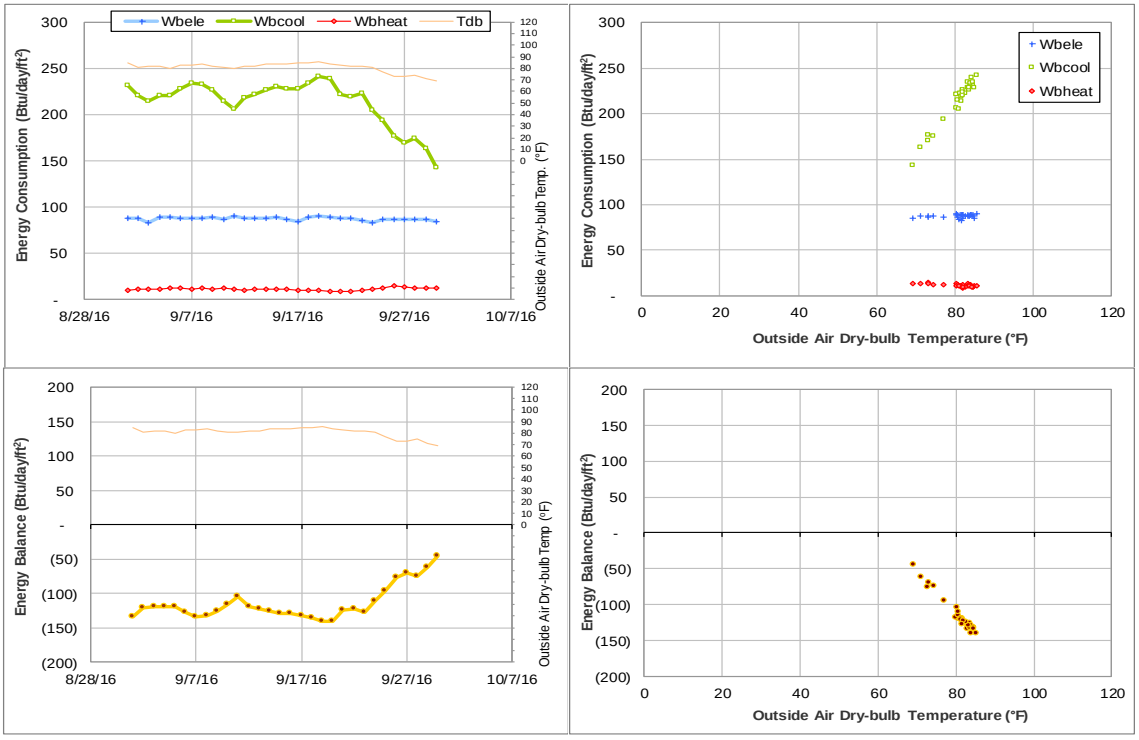


Figure IV-136 Hullabaloo Residence Hall TAMU BLDG # 1416 Energy Balance Plot during September 2016

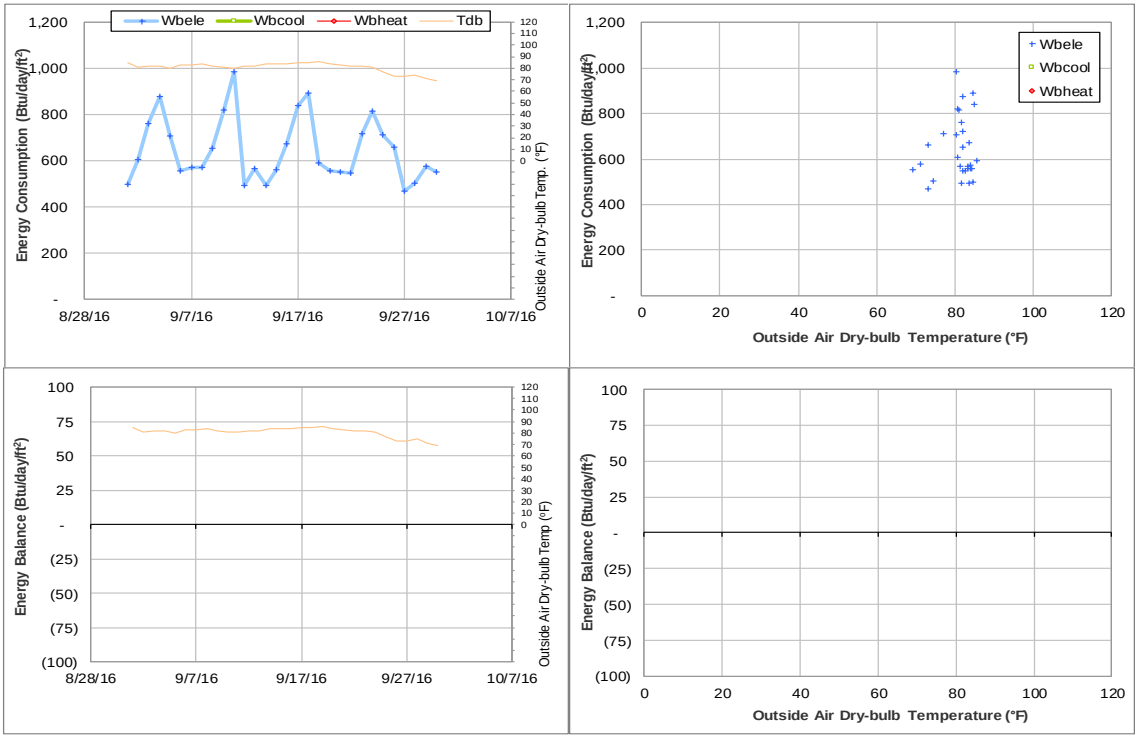


Figure IV-137 University Apartments - Laundry at the Gardens TAMU BLDG # 1450 Energy Balance Plot during September 2016

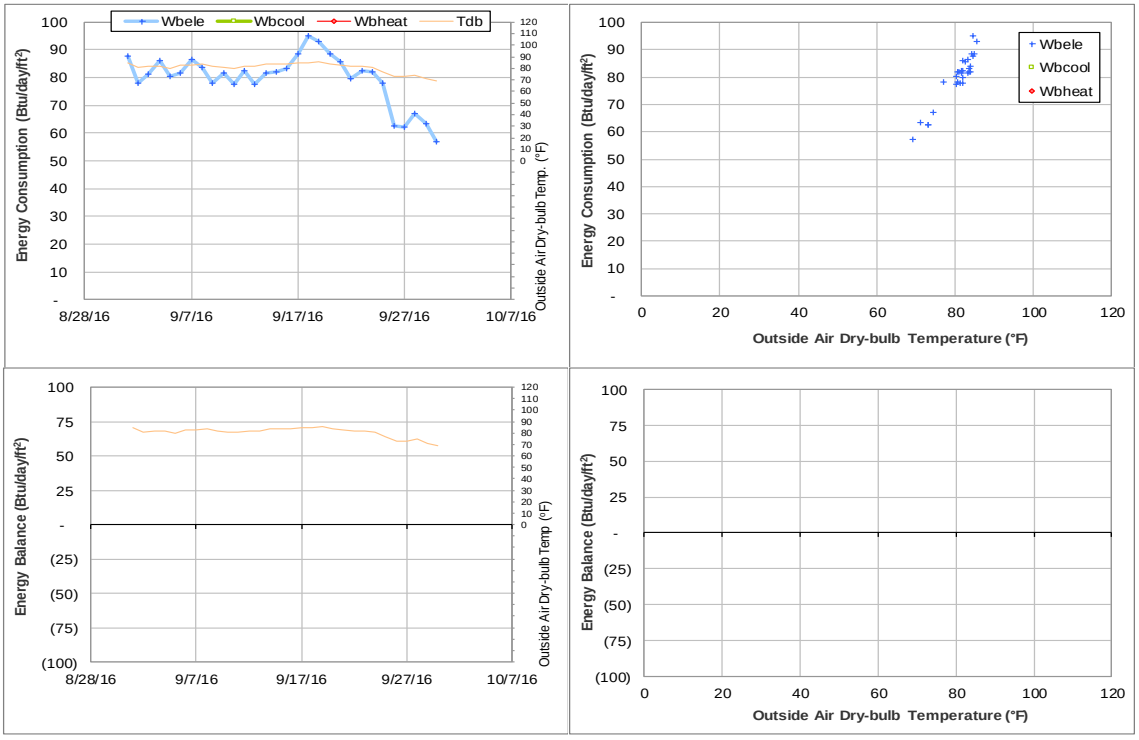


Figure IV-138 University Apartments - The Gardens J TAMU BLDG # 1451 Energy Balance Plot during September 2016

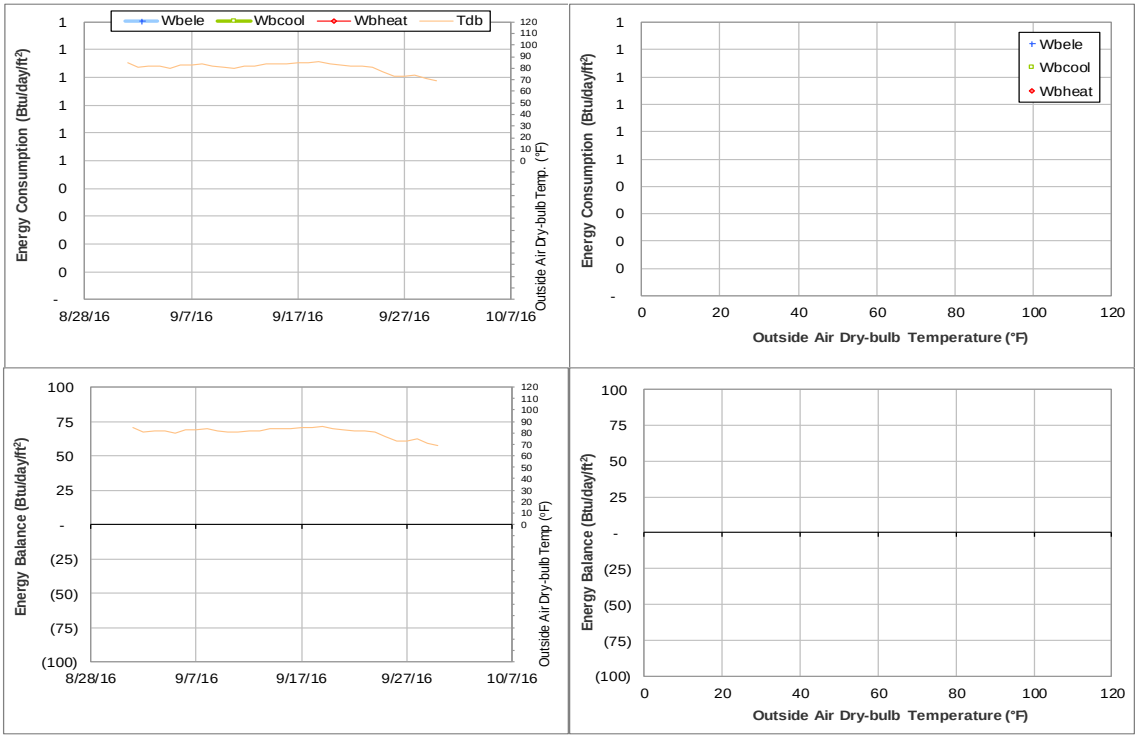


Figure IV-139 University Apartments - The Gardens K TAMU BLDG # 1452 Energy Balance Plot during September 2016

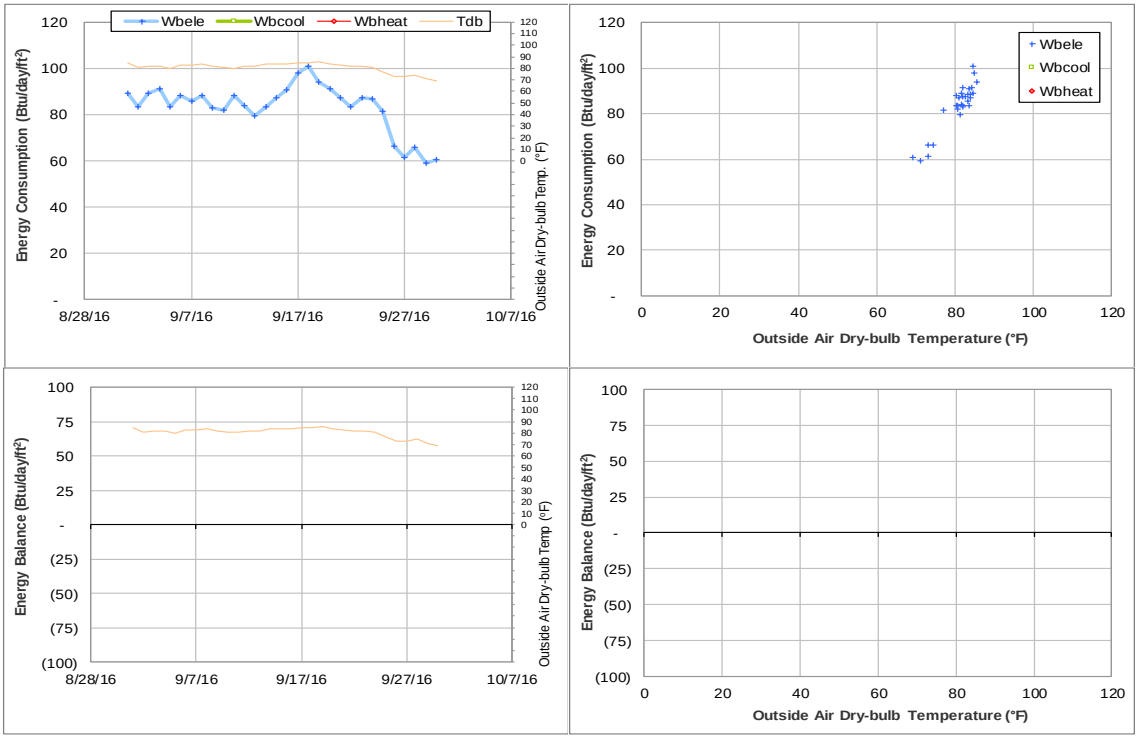


Figure IV-140 University Apartments - The Gardens L TAMU BLDG # 1453 Energy Balance Plot during September 2016

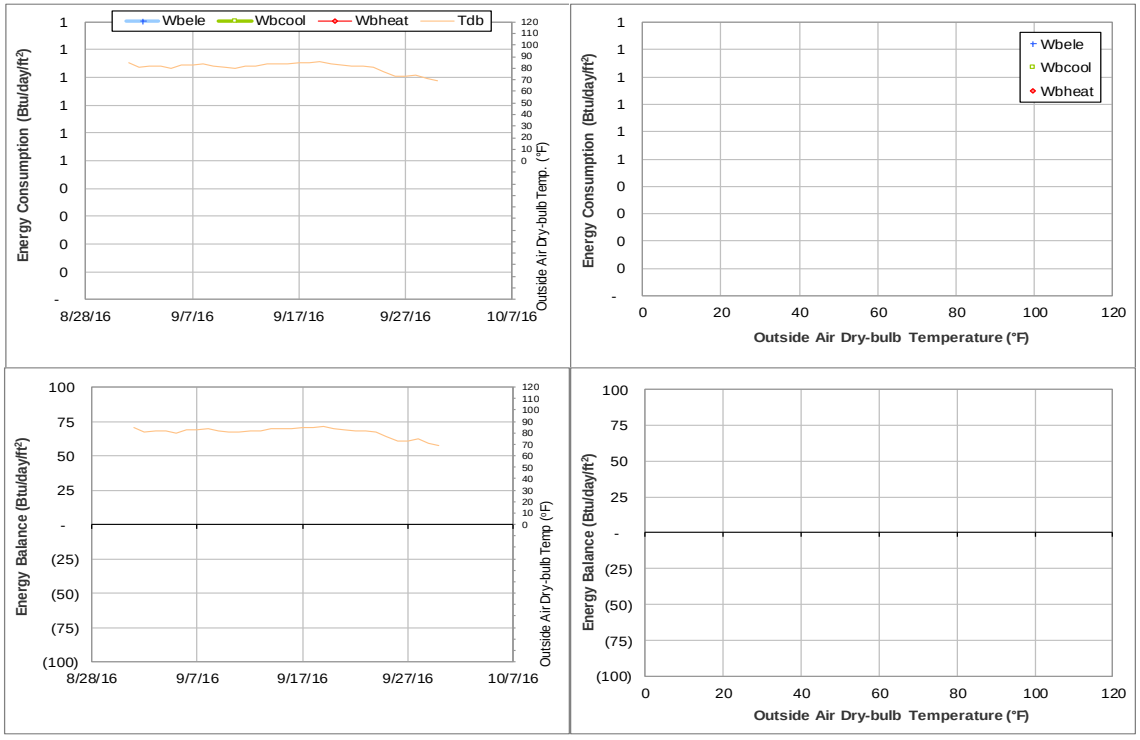


Figure IV-141 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during September 2016

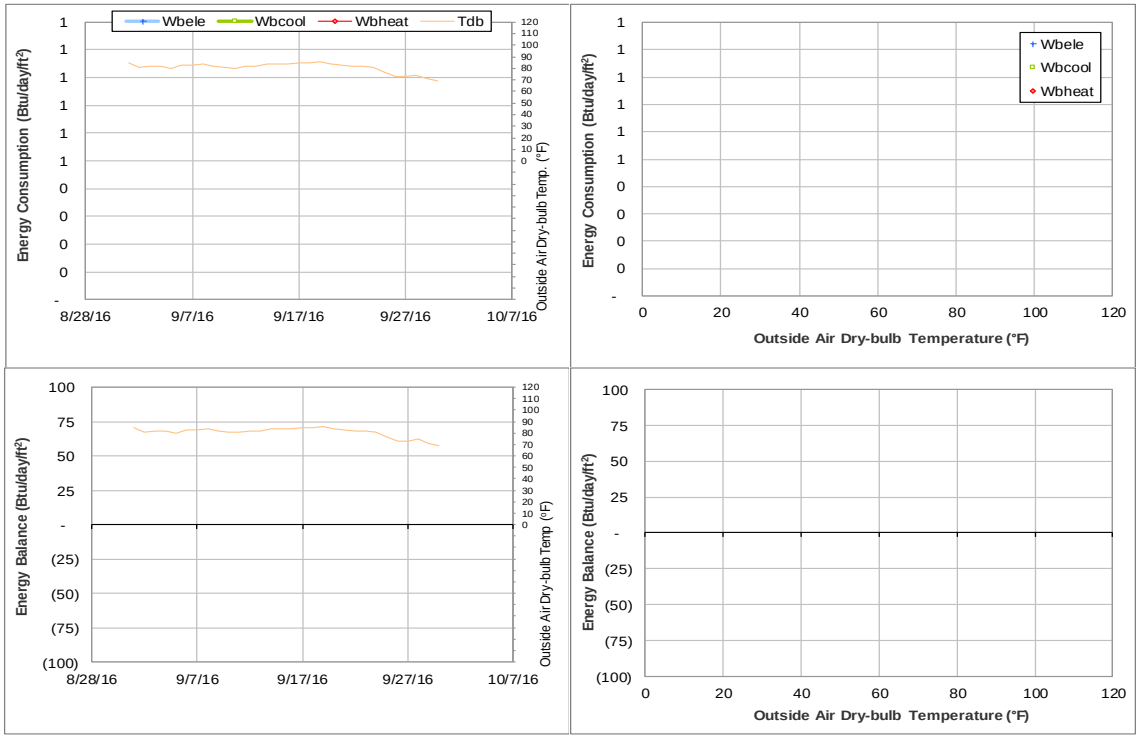


Figure IV-142 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during September 2016

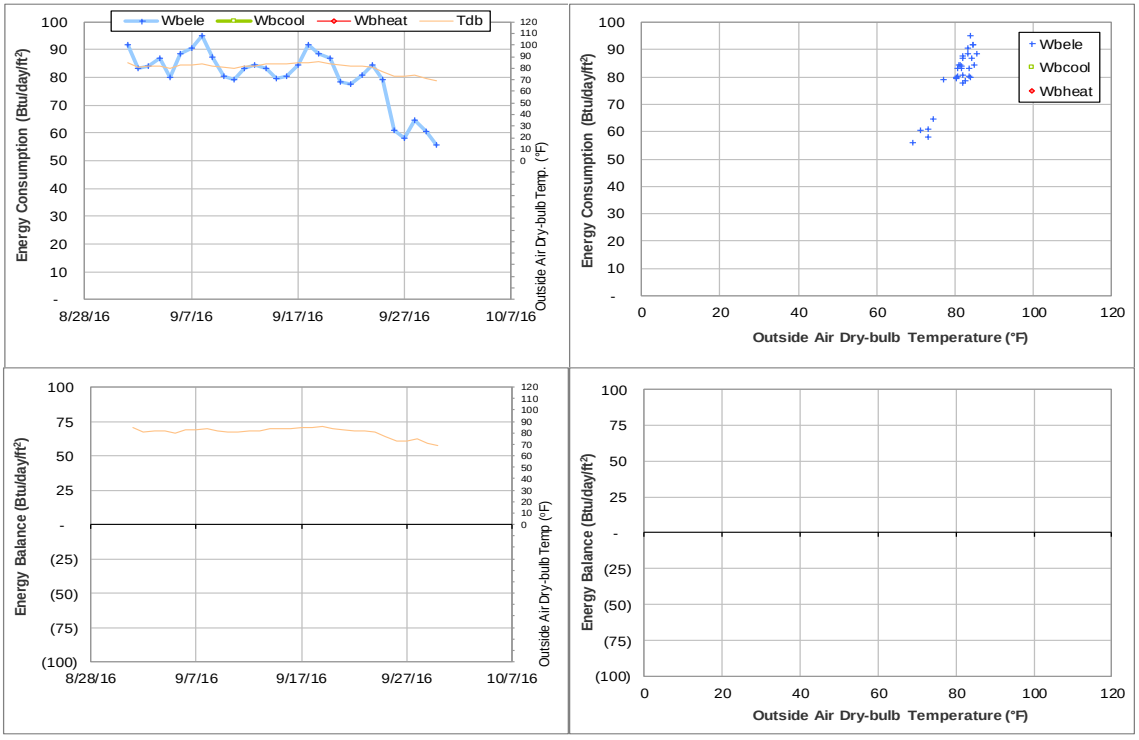


Figure IV-143 University Apartments - The Gardens H TAMU BLDG # 1456 Energy Balance Plot during September 2016

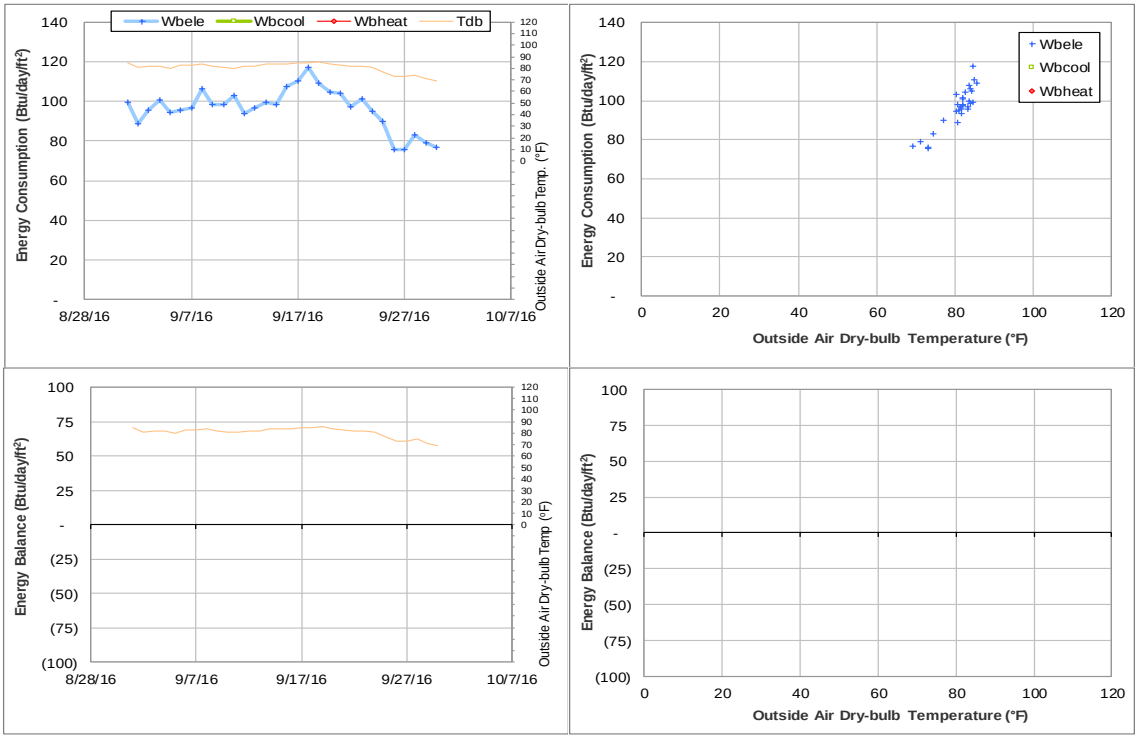


Figure IV-144 University Apartments - The Gardens M TAMU BLDG # 1457 Energy Balance Plot during September 2016

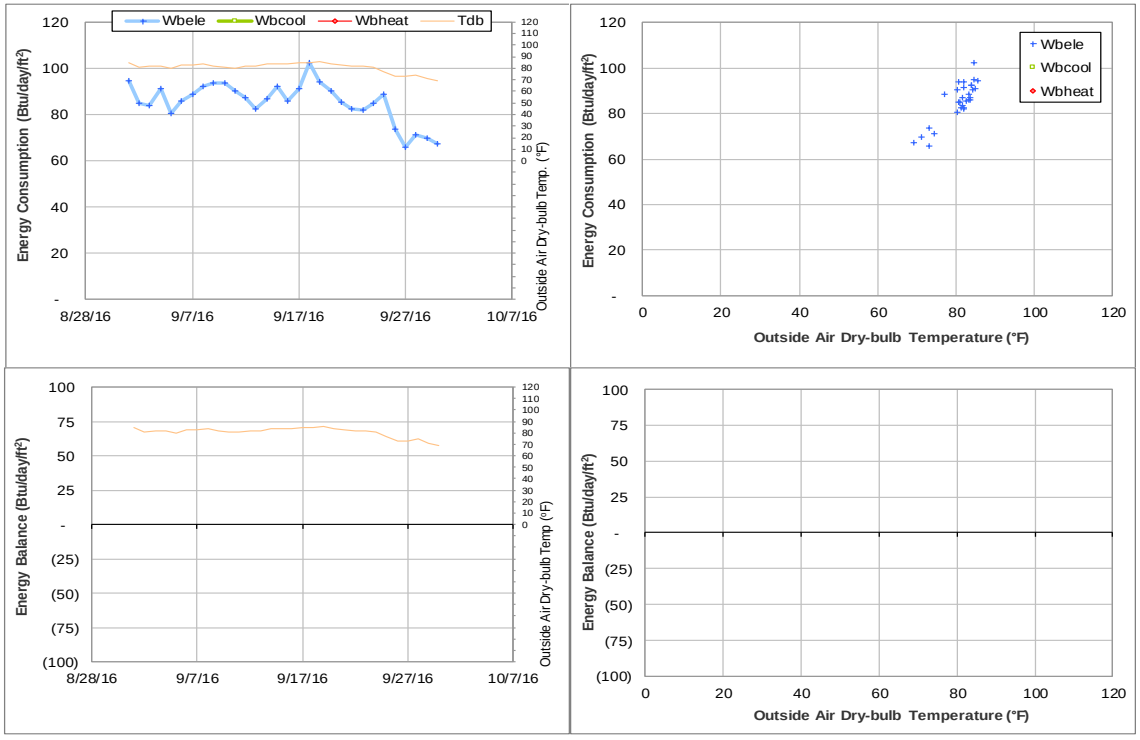


Figure IV-145 University Apartments - The Gardens N TAMU BLDG # 1458 Energy Balance Plot during September 2016

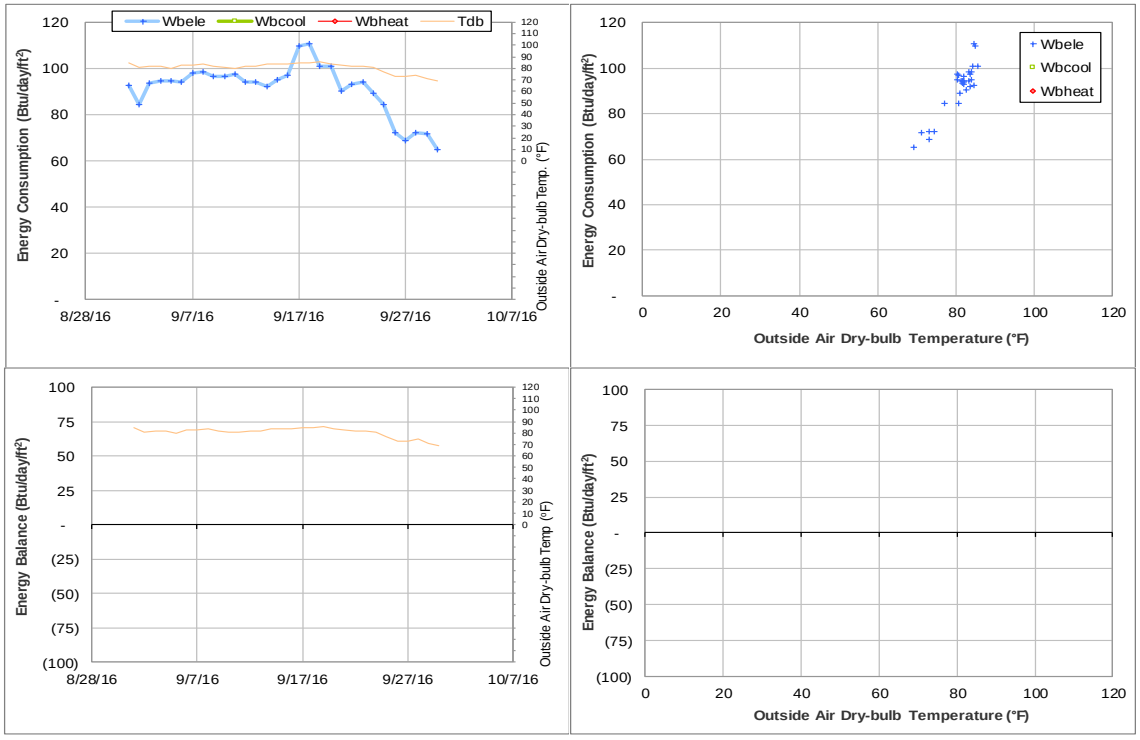


Figure IV-146 University Apartments - The Gardens P TAMU BLDG # 1459 Energy Balance Plot during September 2016

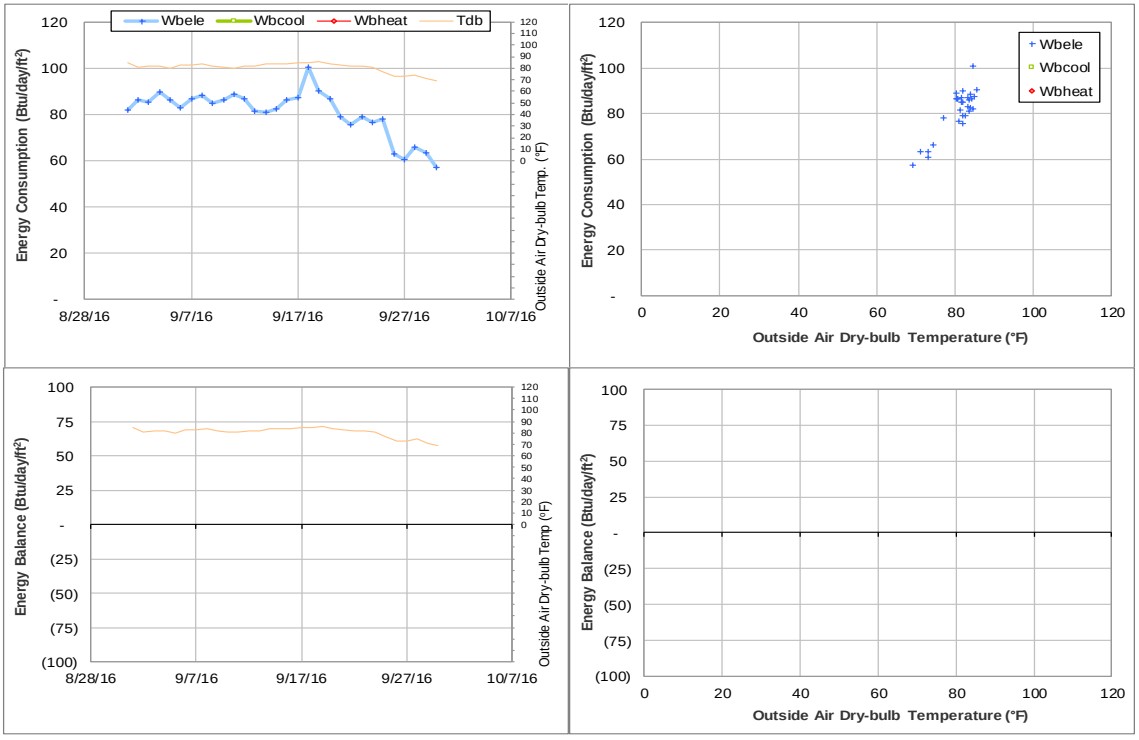


Figure IV-147 University Apartments - The Gardens Q TAMU BLDG # 1460 Energy Balance Plot during September 2016

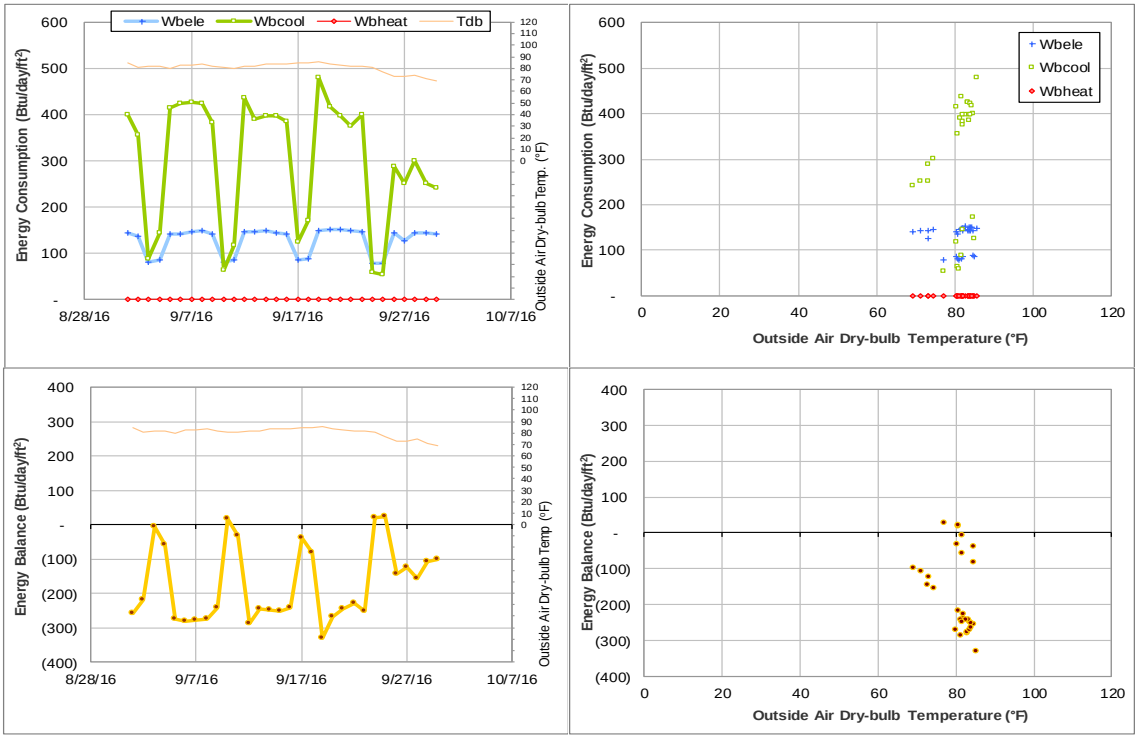


Figure IV-148 Utilities & Energy Services Business Office TAMU BLDG # 1497 Energy Balance Plot during September 2016

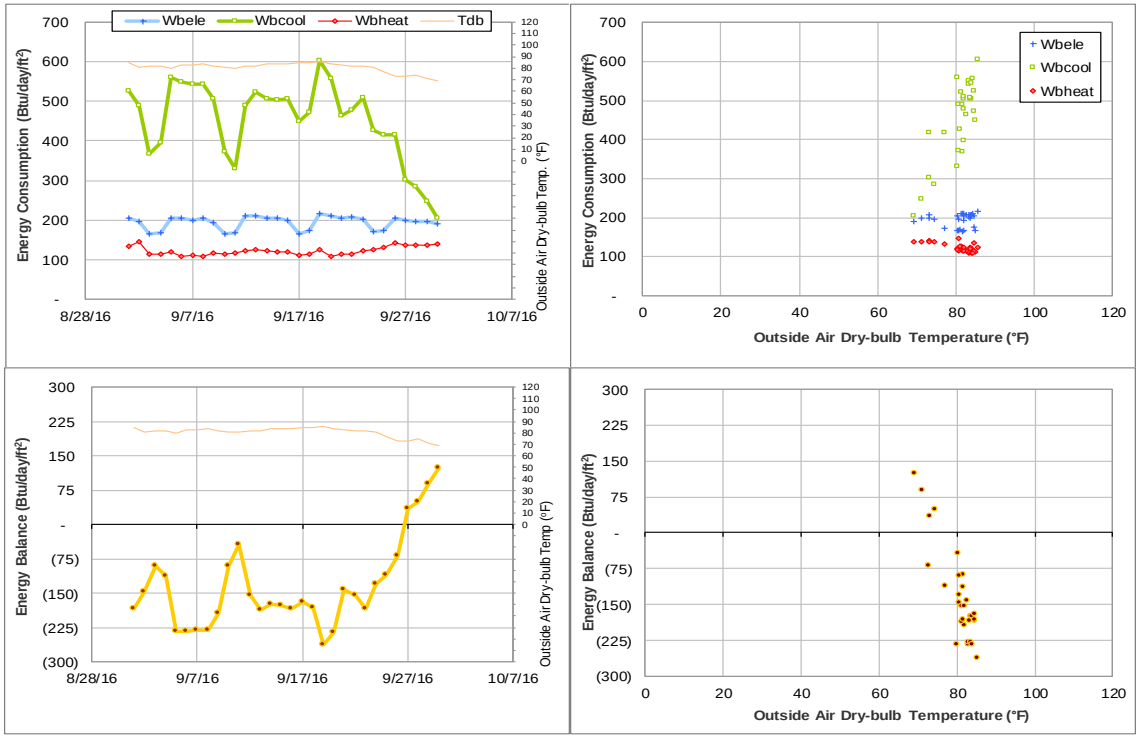


Figure IV-149 Kleberg Center TAMU BLDG # 1501 Energy Balance Plot during September 2016

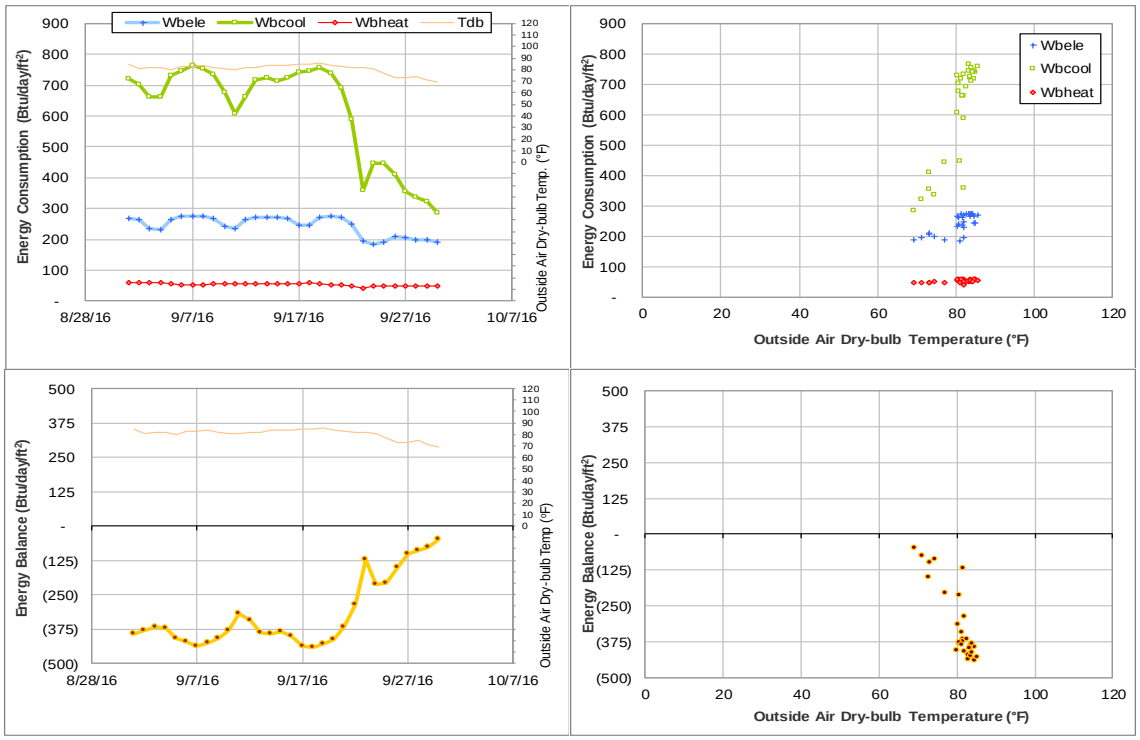


Figure IV-150 Heep Center TAMU BLDG # 1502 Energy Balance Plot during September 2016

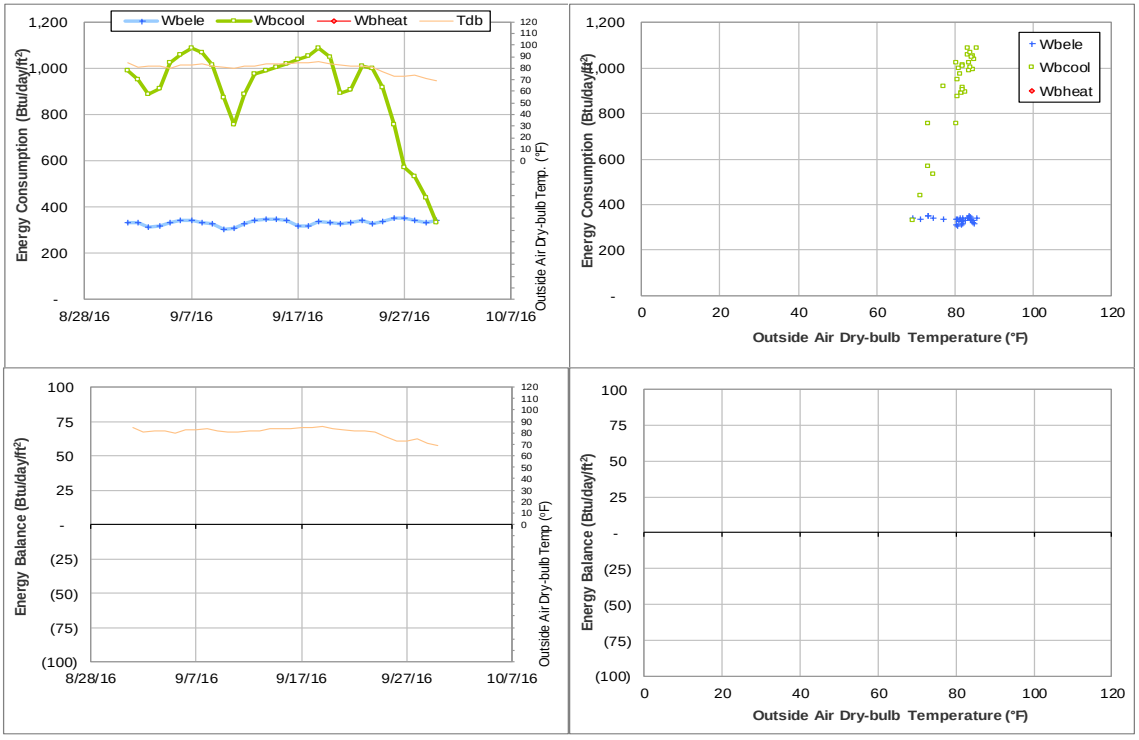


Figure IV-151 Cater-Mattil Hall TAMU BLDG # 1503 Energy Balance Plot during September 2016

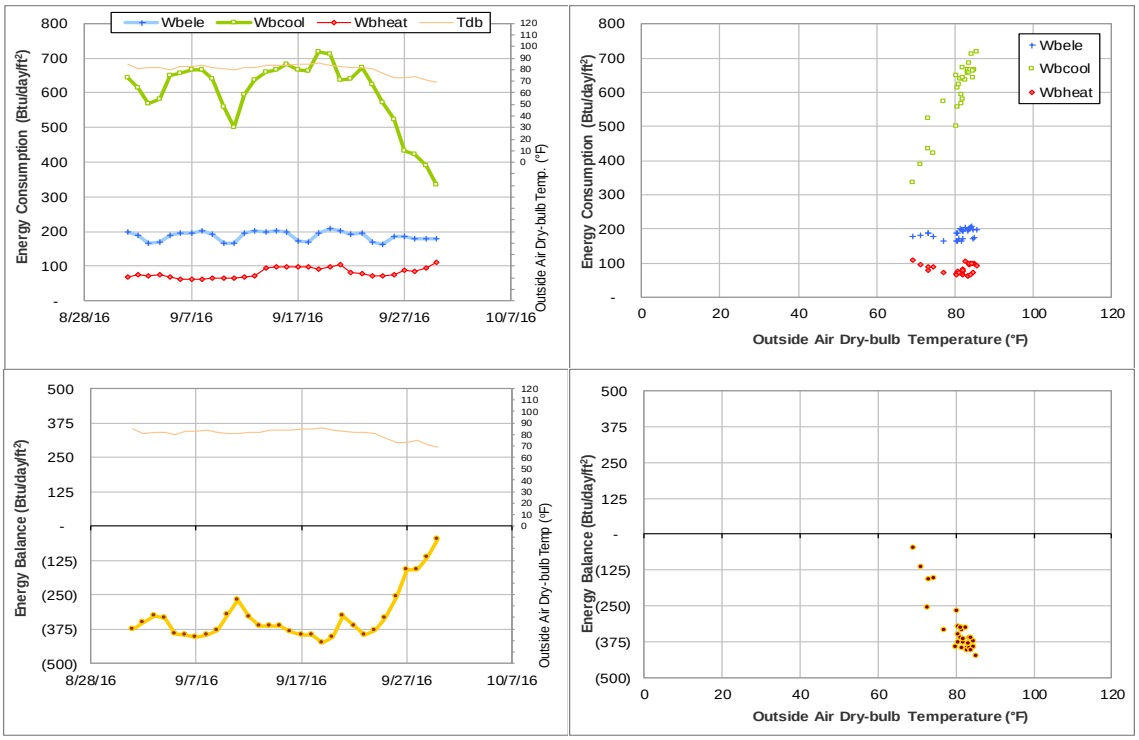


Figure IV-152 Reynolds Medical Sciences Building TAMU BLDG # 1504 Energy Balance Plot during September 2016

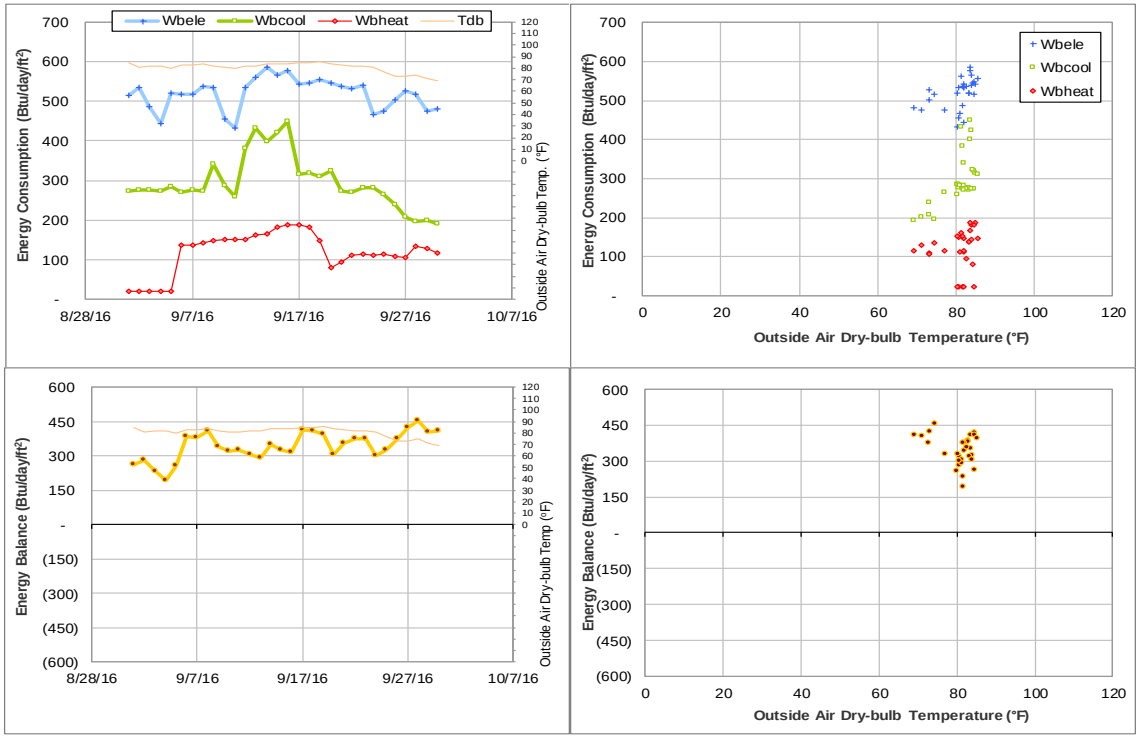


Figure IV-153 Rosenthal Meat Science & Technology Center TAMU BLDG # 1505 Energy Balance Plot during September 2016

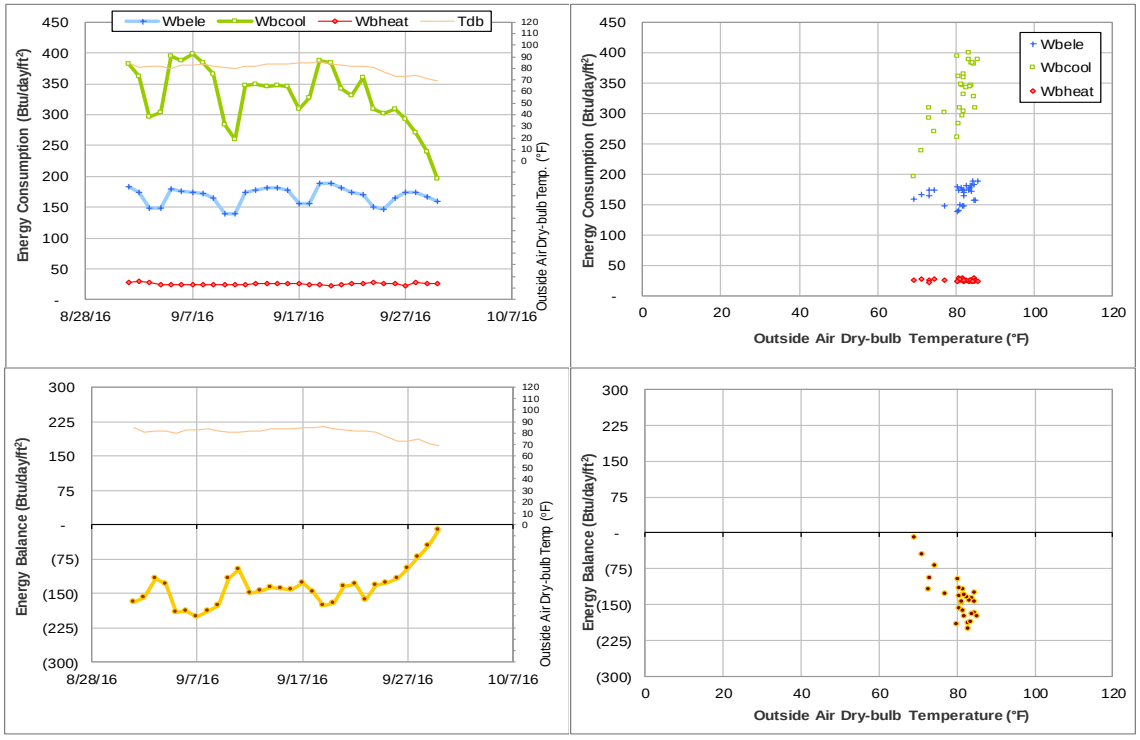


Figure IV-154 Horticulture-Forest Science Building TAMU BLDG # 1506 Energy Balance Plot during September 2016

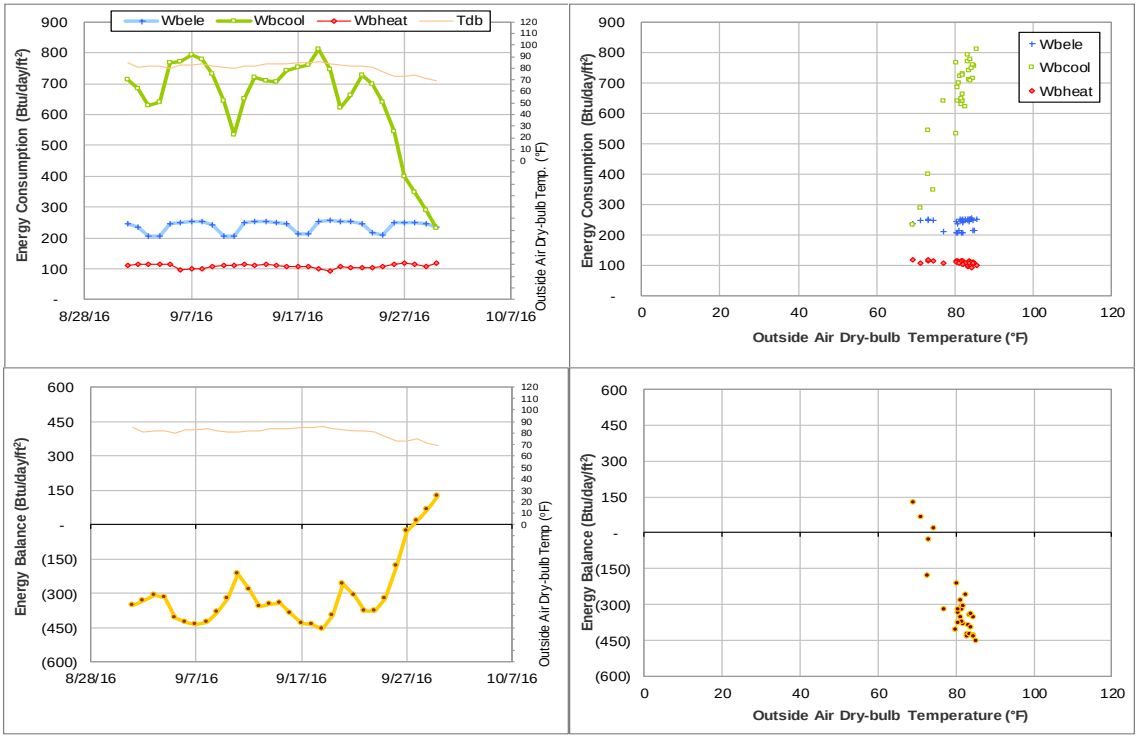


Figure IV-155 Biochemistry-Biophysics Building TAMU BLDG # 1507 Energy Balance Plot during September 2016

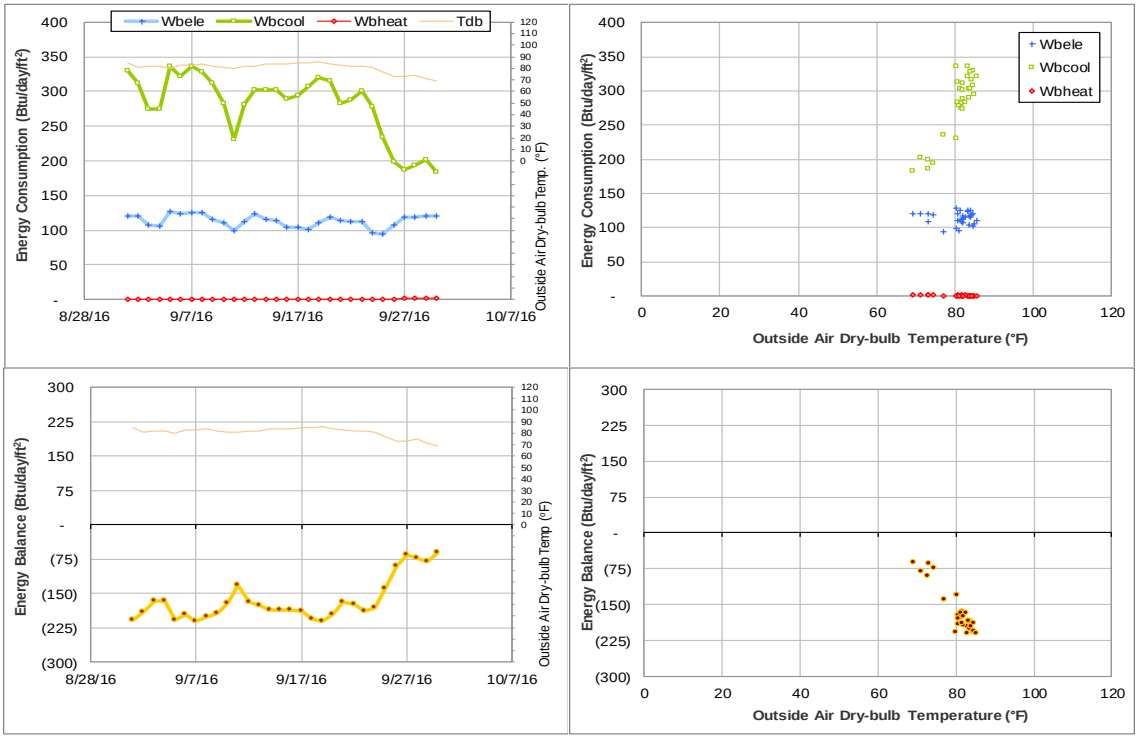


Figure IV-156 Price Hobgood Ag. Engineering Research Lab TAMU BLDG # 1508 Energy Balance Plot during September 2016

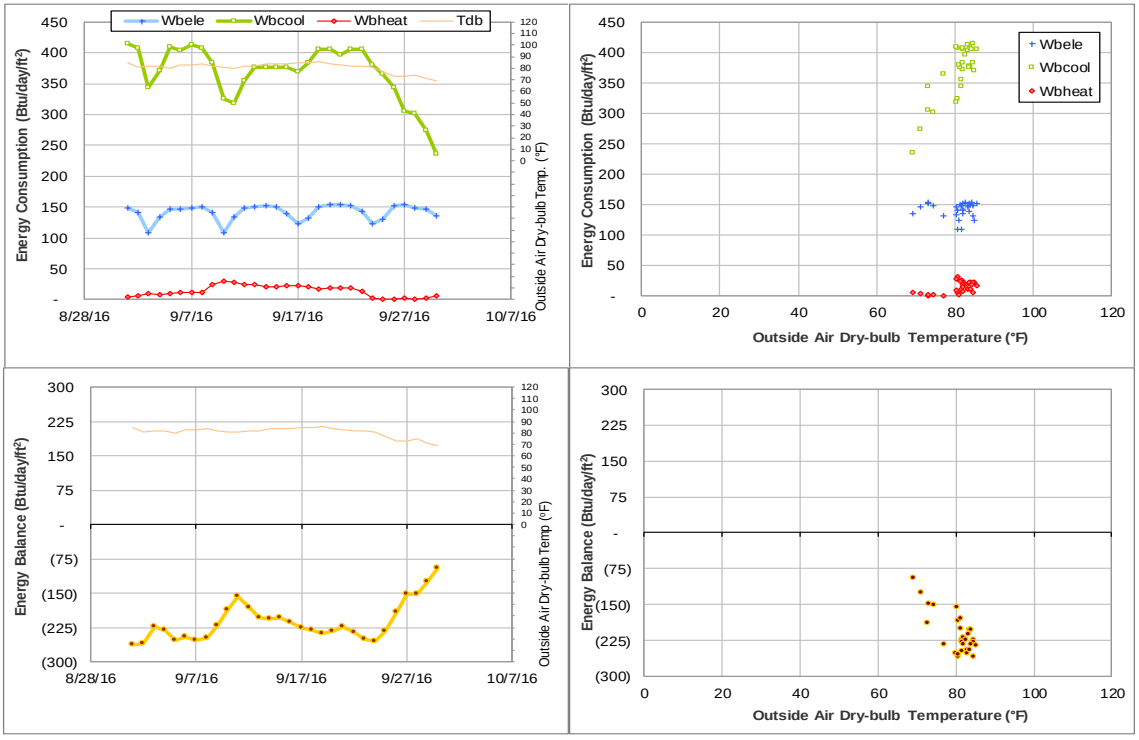


Figure IV-157 Medical Sciences Library TAMU BLDG # 1509 Energy Balance Plot during September 2016

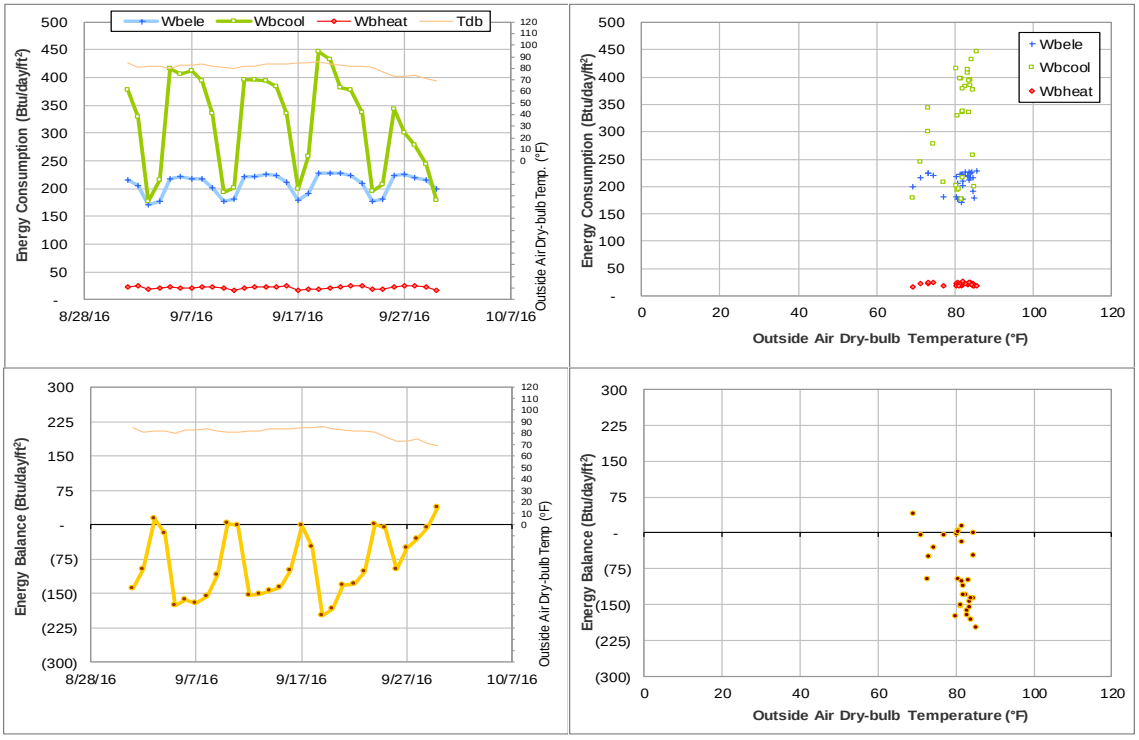


Figure IV-158 Wehner Building TAMU BLDG # 1510 Energy Balance Plot during September 2016

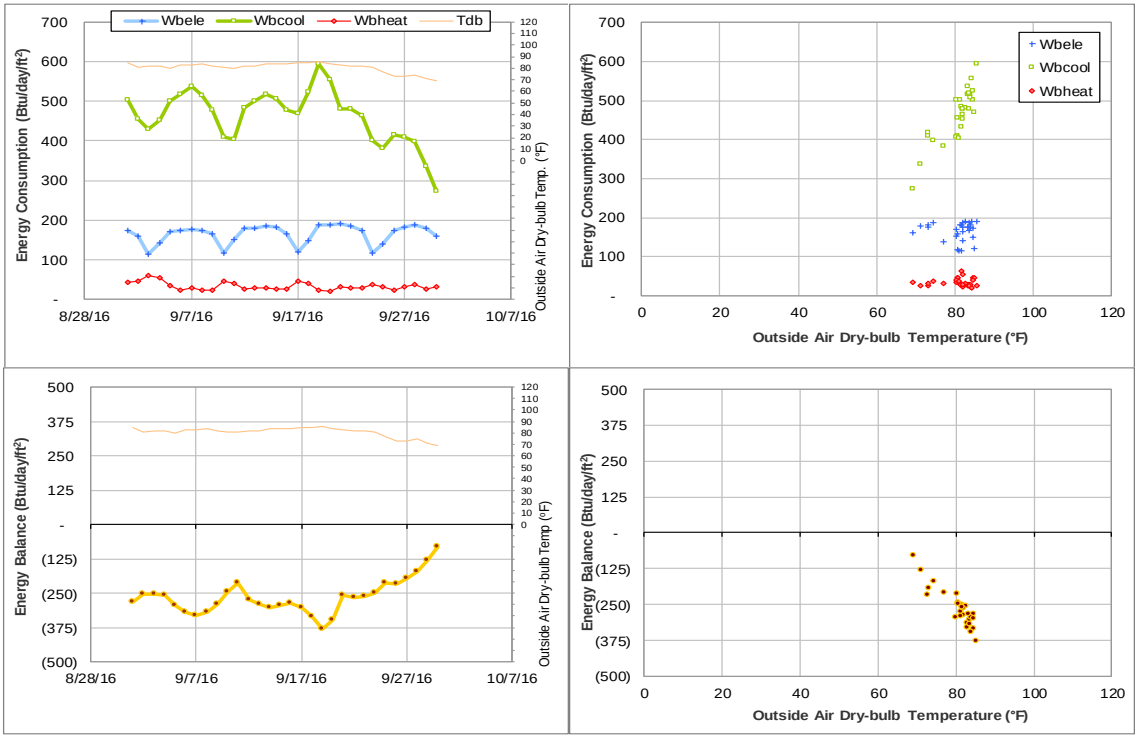


Figure IV-159 West Campus Library Facility TAMU BLDG # 1511 Energy Balance Plot during September 2016

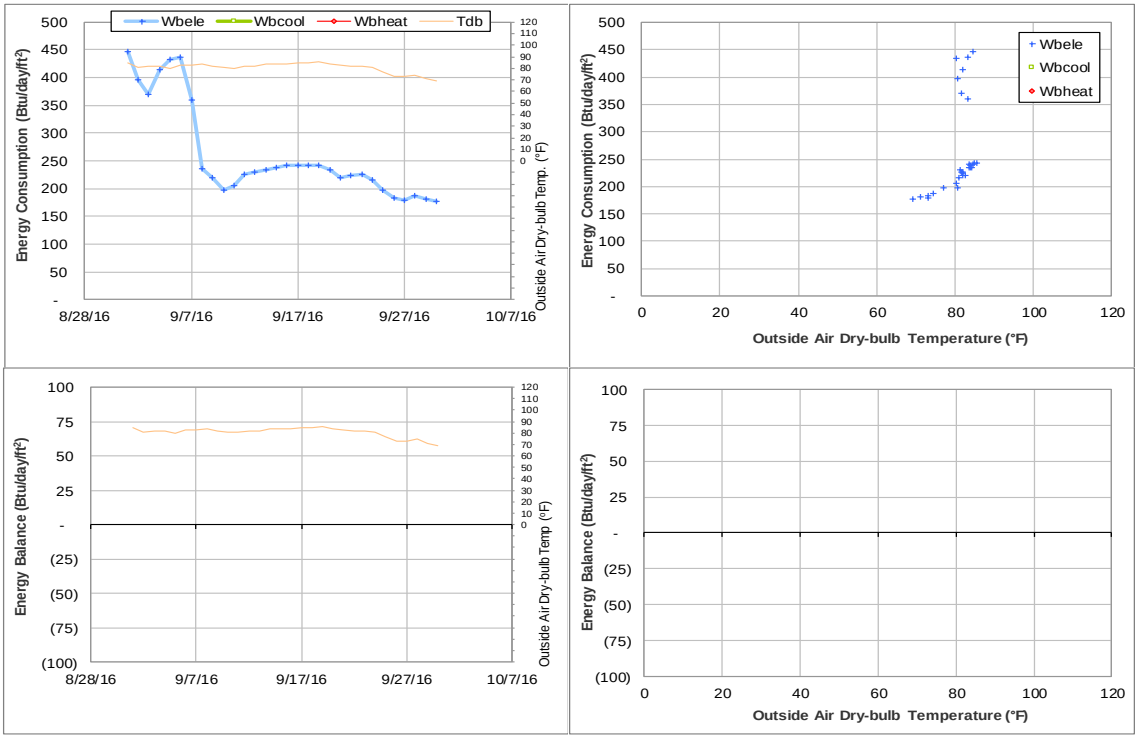


Figure IV-160 Southern Crop Improvement Greenhouse TAMU BLDG # 1512 Energy Balance Plot during September 2016

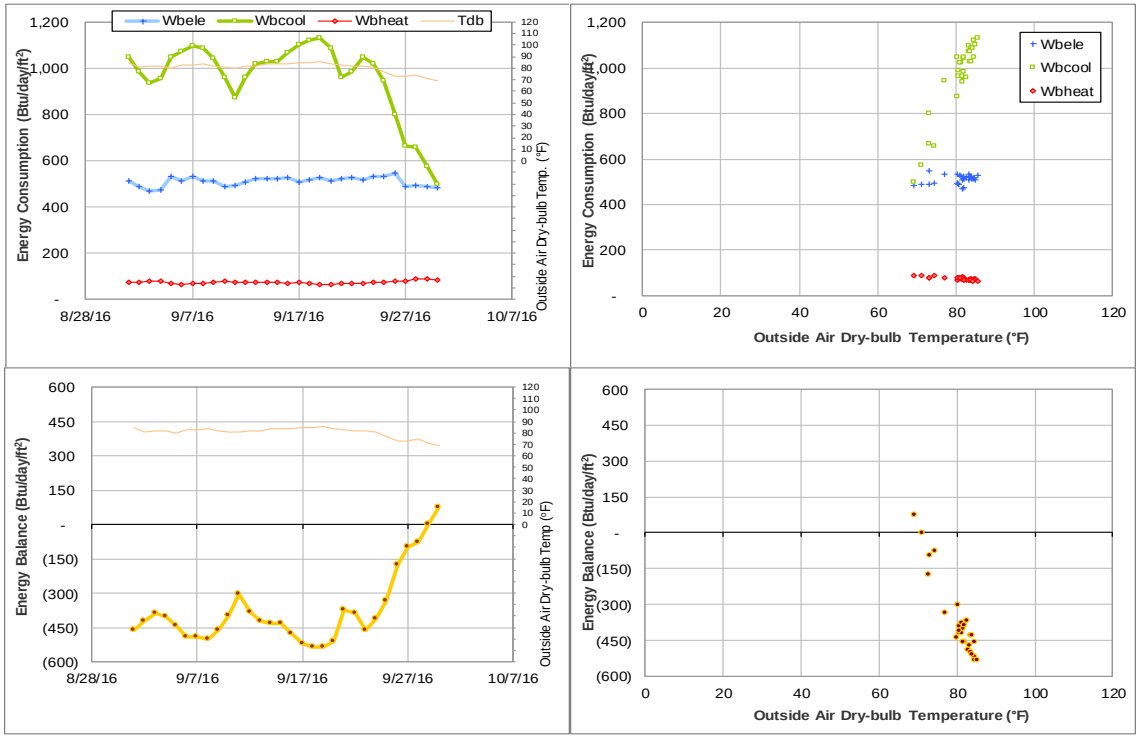


Figure IV-161 Borlaug Center for Southern Crop Improvement TAMU BLDG # 1513 Energy Balance Plot during September 2016

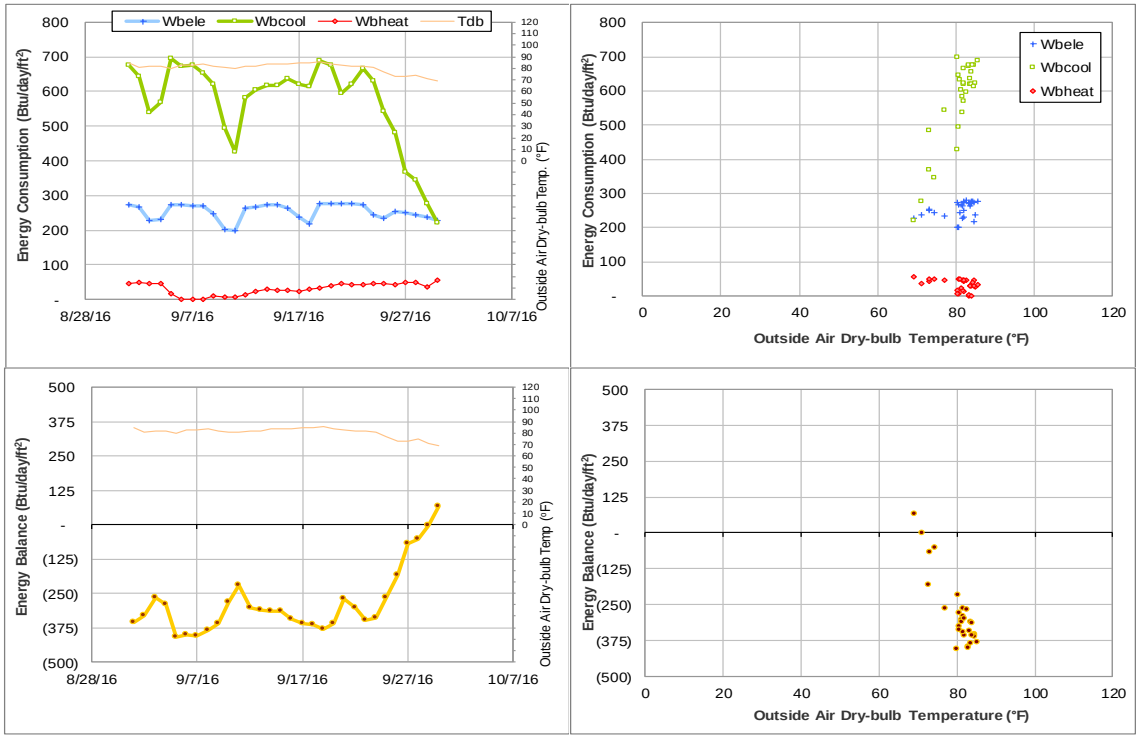


Figure IV-162 TX School of Rural Public Health TAMU BLDG # 1518 Energy Balance Plot during September 2016

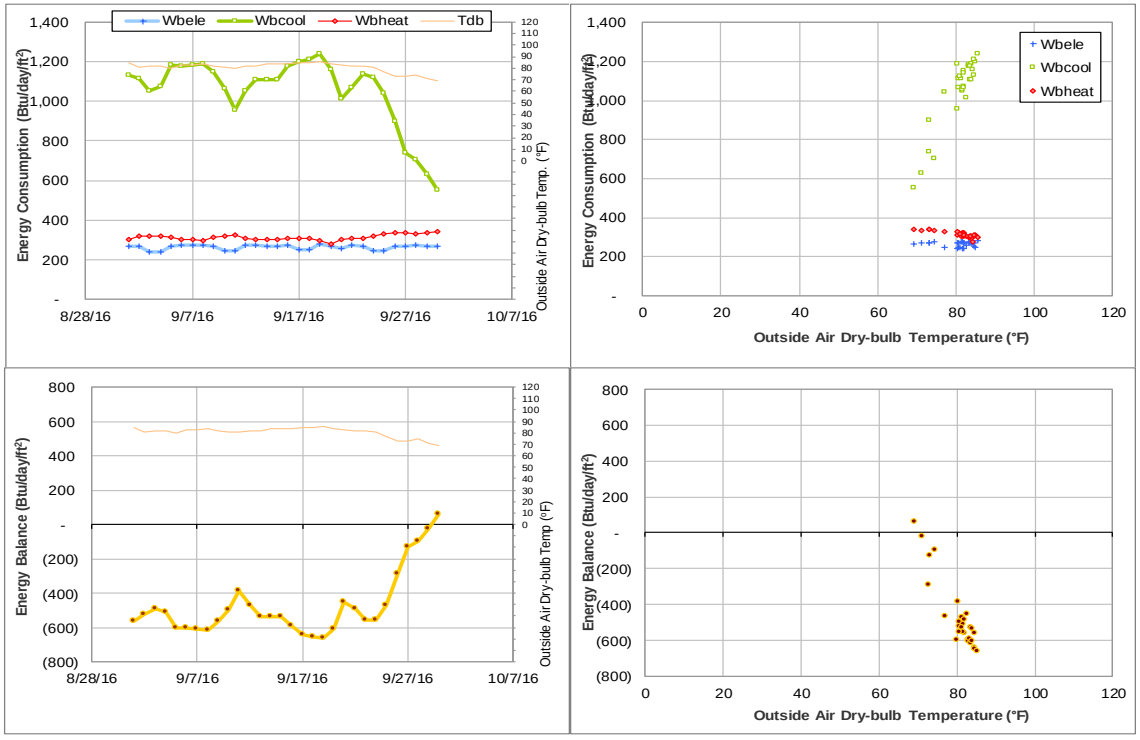


Figure IV-163 Nuclear Magnetic Resonance Facility TAMU BLDG # 1525 Energy Balance Plot during September 2016

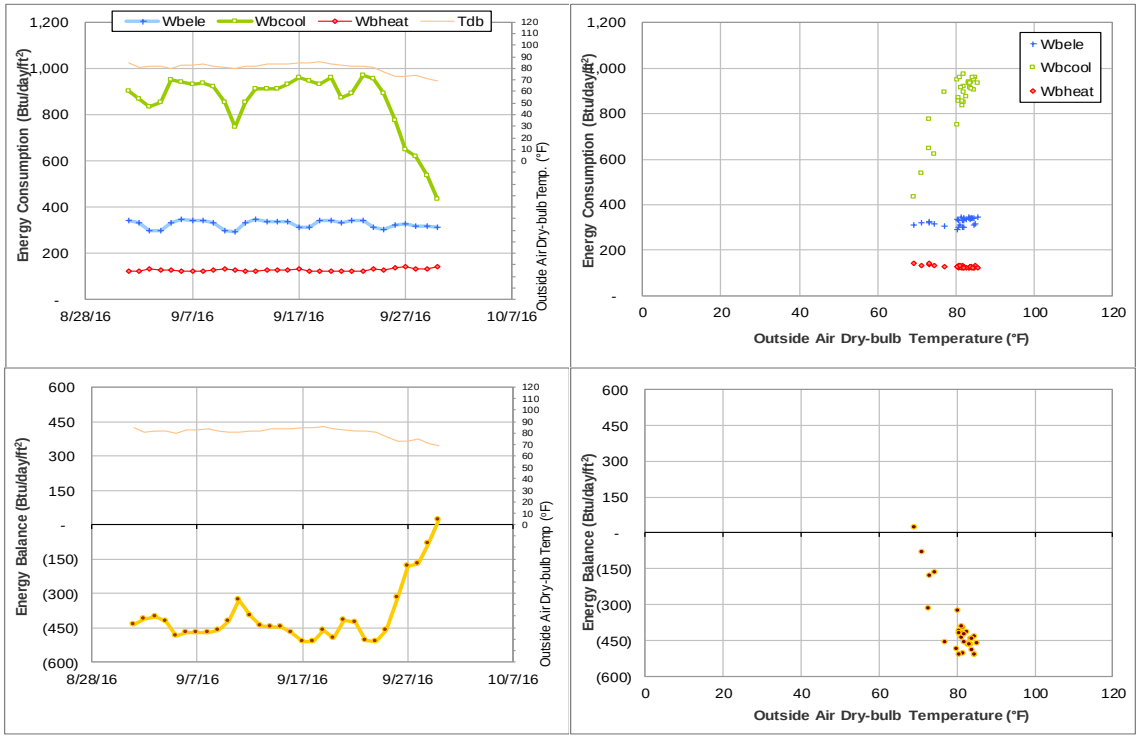


Figure IV-164 Interdisciplinary Life Sciences Building TAMU BLDG # 1530 Energy Balance Plot during September 2016

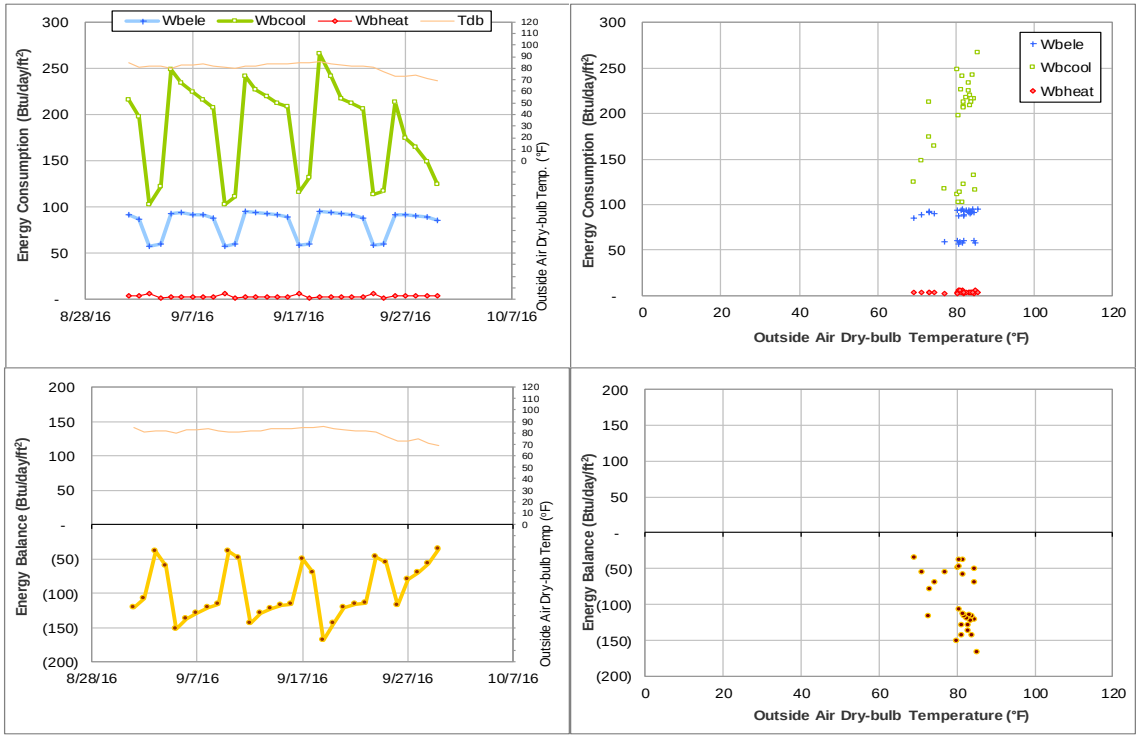


Figure IV-165 Agriculture and Life Sciences Building TAMU BLDG # 1535 Energy Balance Plot during September 2016

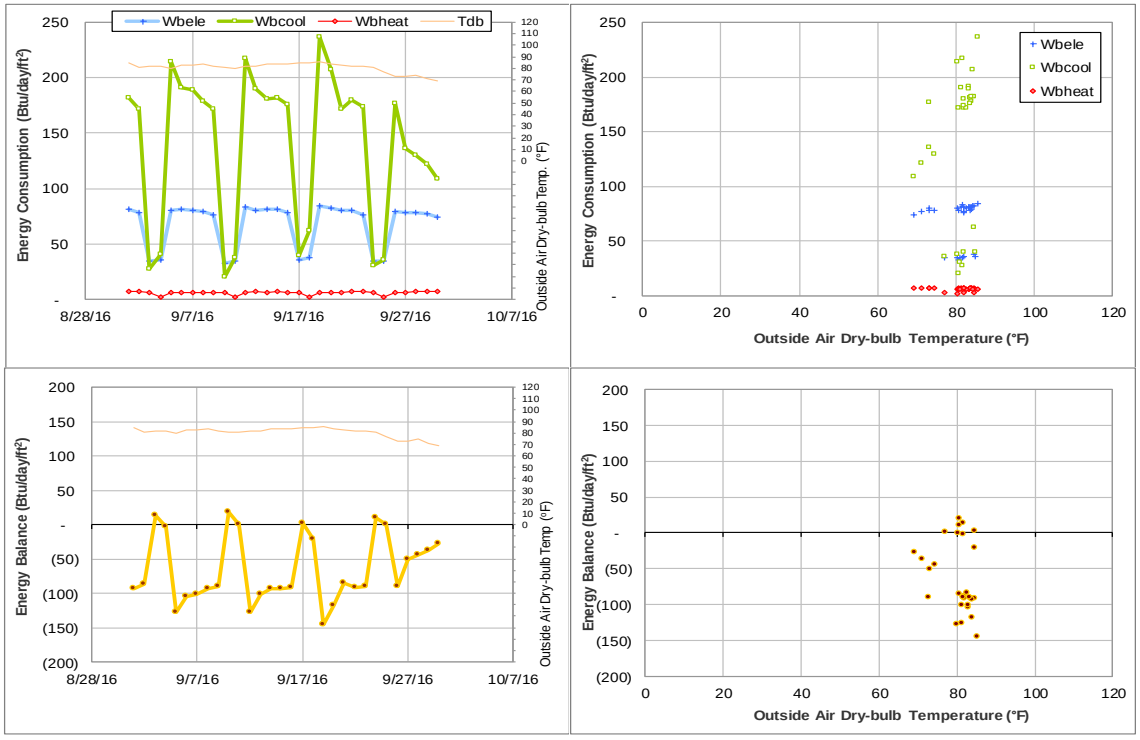


Figure IV-166 AgriLife Services Building TAMU BLDG # 1536 Energy Balance Plot during September 2016

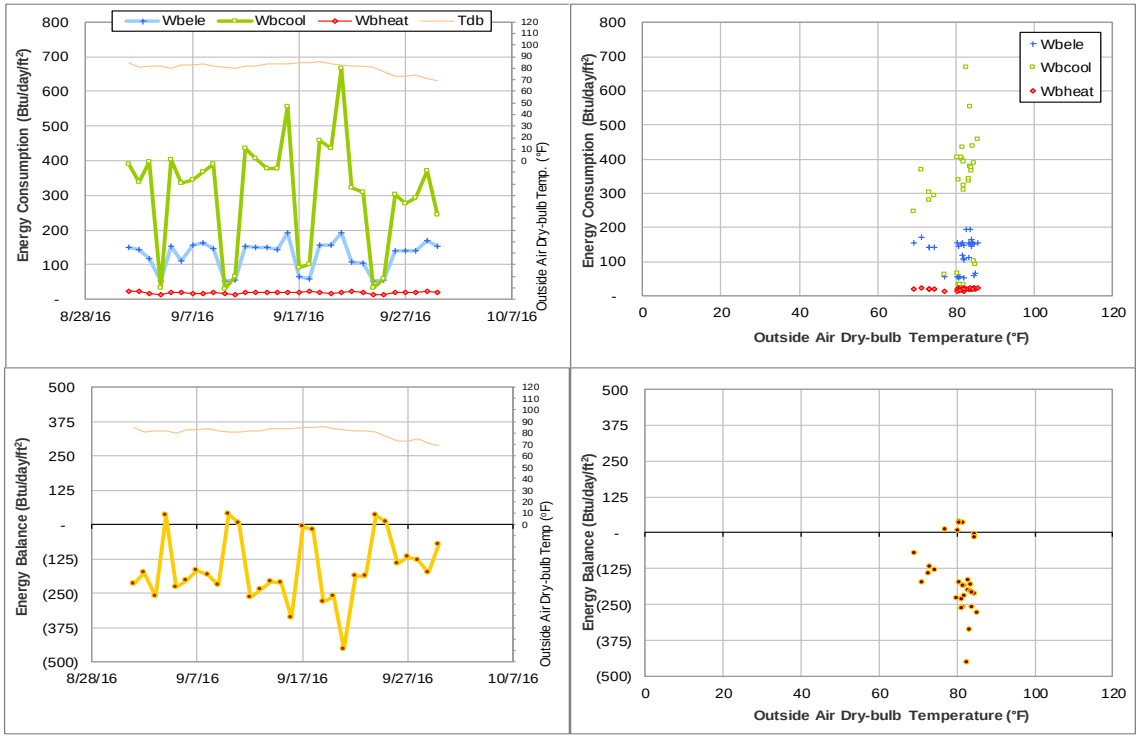


Figure IV-167 Agriculture Program Visitors Center TAMU BLDG # 1538 Energy Balance Plot during September 2016

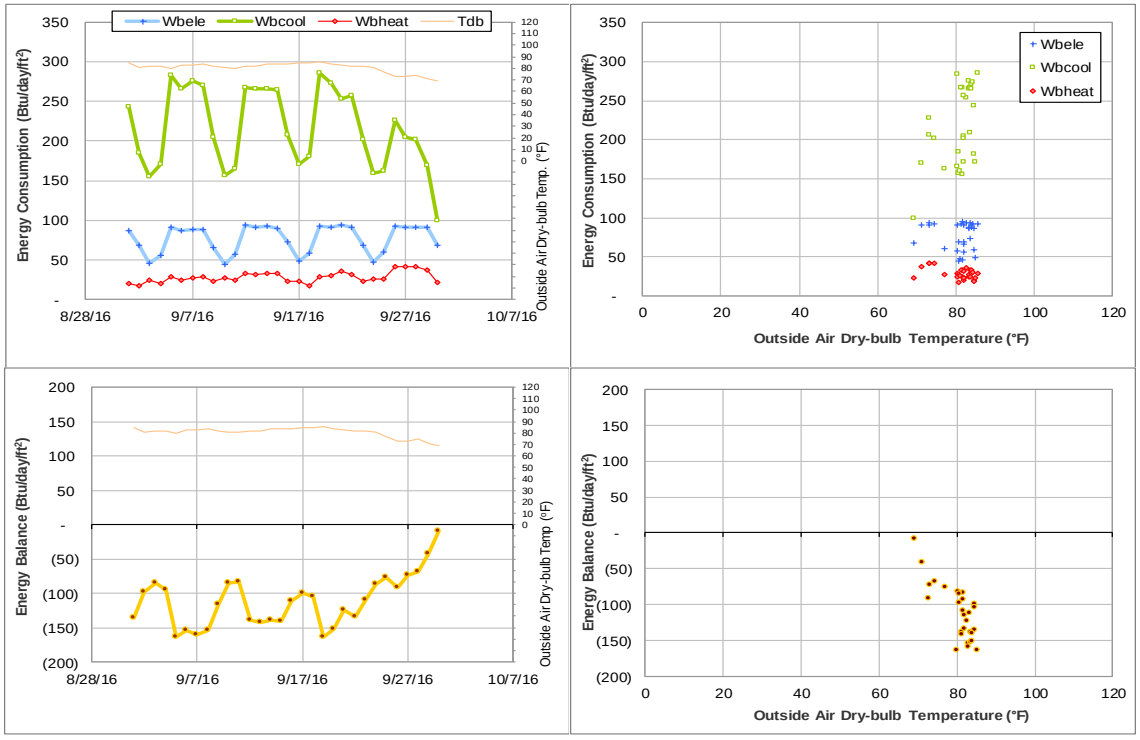


Figure IV-168 Physical Education Activity Program Building TAMU BLDG # 1540 Energy Balance Plot during September 2016

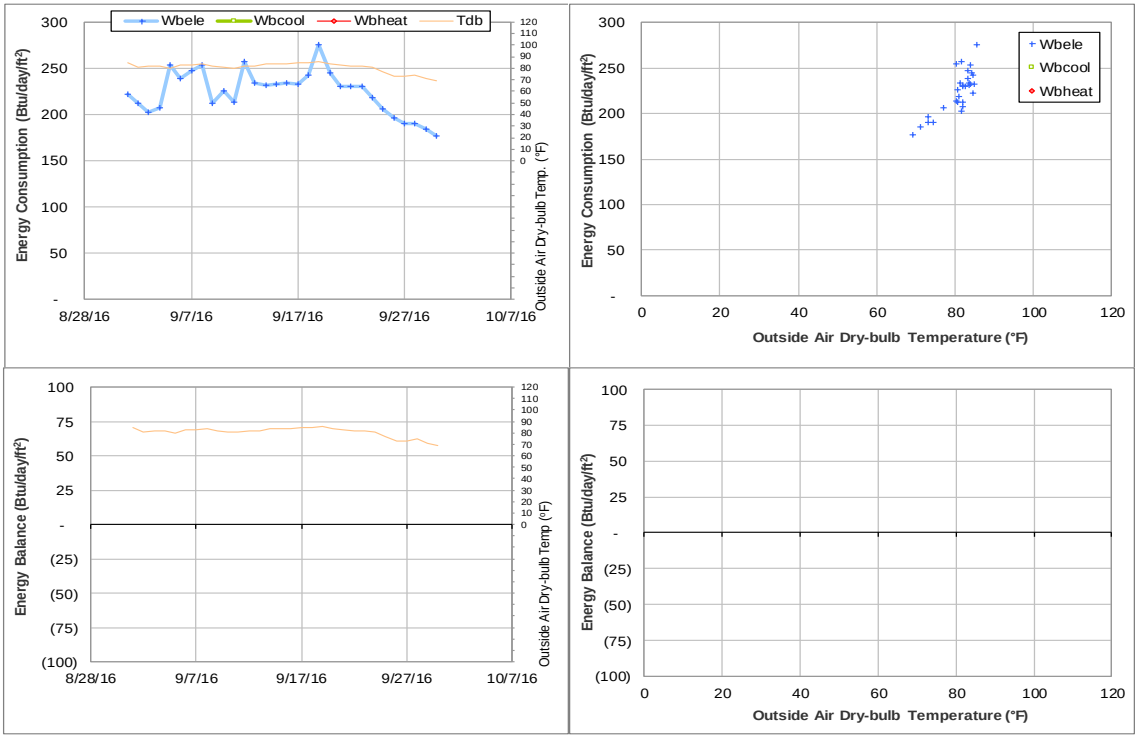


Figure IV-169 Olsen Field at Bluebell Park TAMU BLDG # 1550 Energy Balance Plot during September 2016

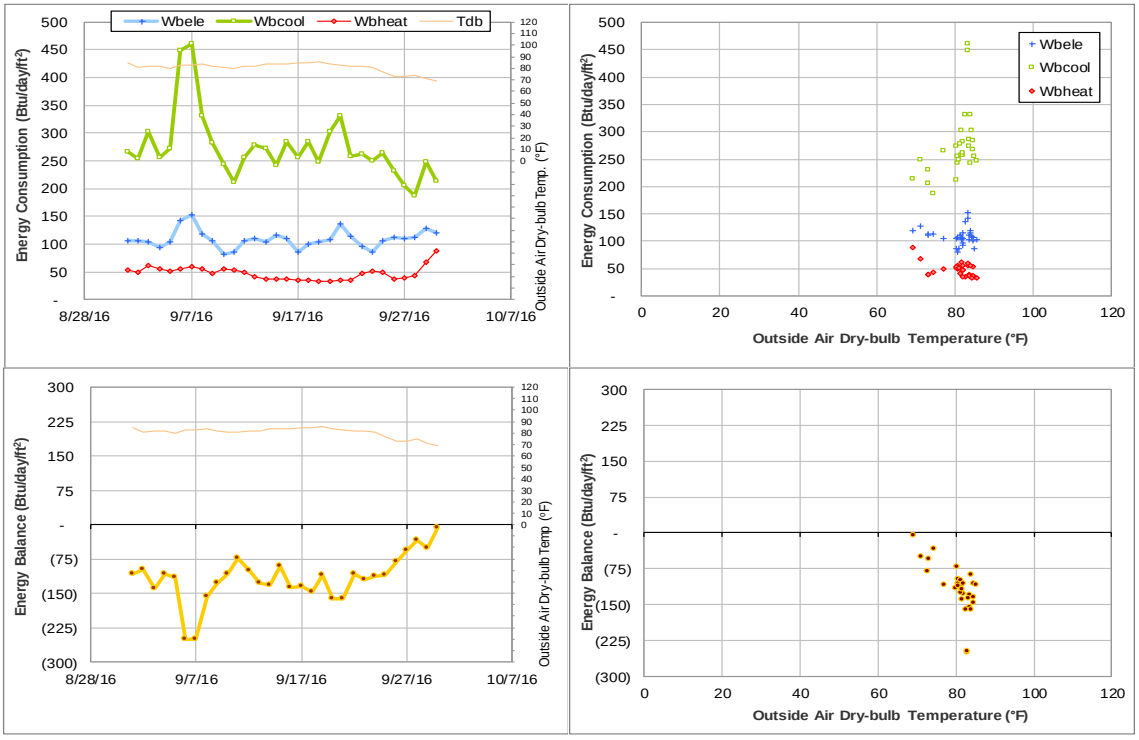


Figure IV-170 Reed Arena and Cox-McFerrin Center TAMU BLDG # 1554 and #1558 Energy Balance Plot during September 2016

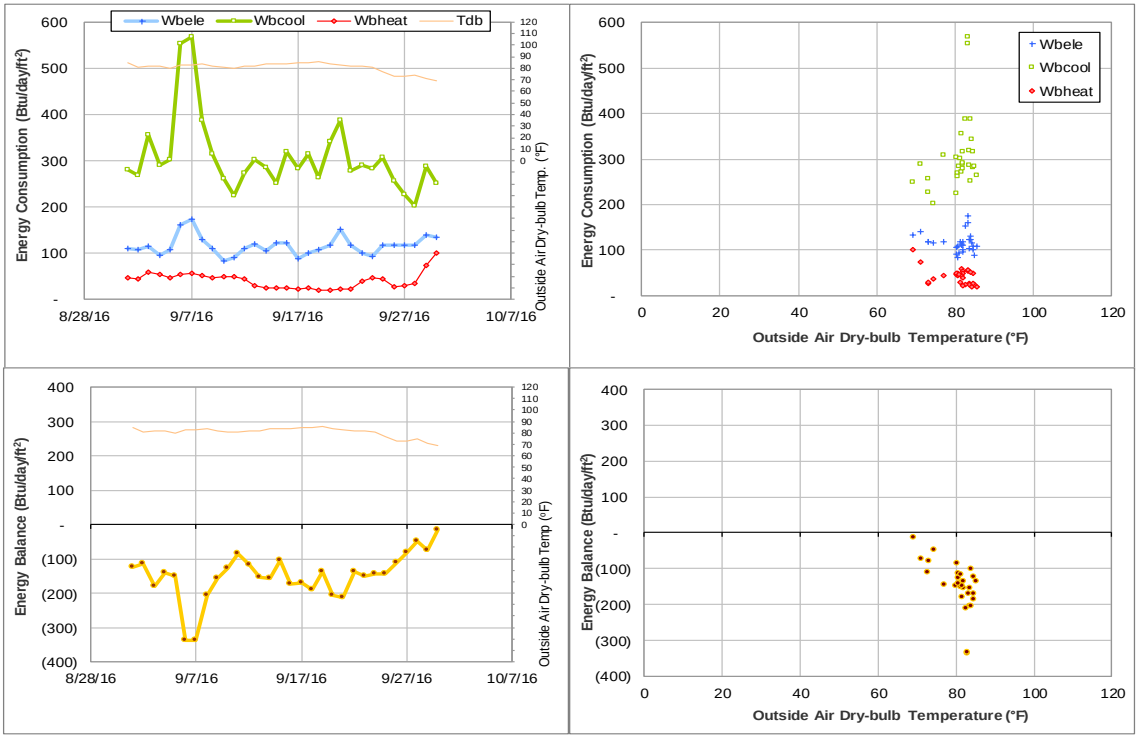


Figure IV-171 Reed Arena TAMU BLDG # 1554 Energy Balance Plot during August 2013

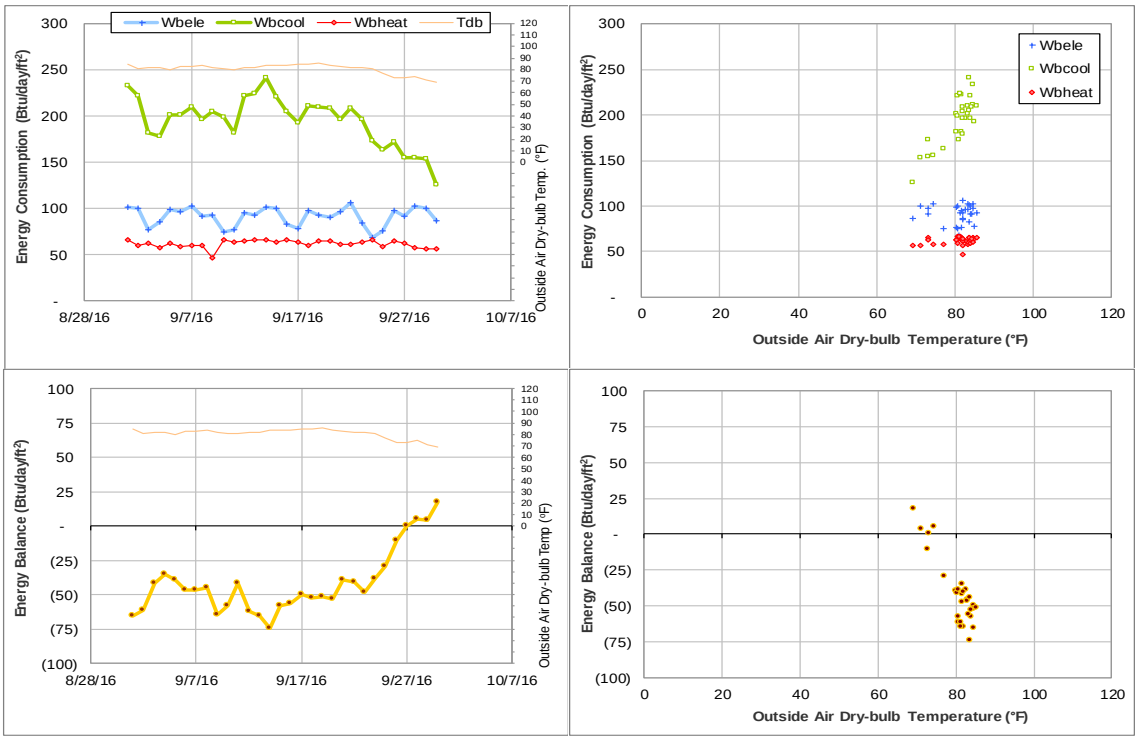


Figure IV-172 Cox-McFerrin Center for Aggie Basketball TAMU BLDG # 1558 Energy Balance Plot during September 2016

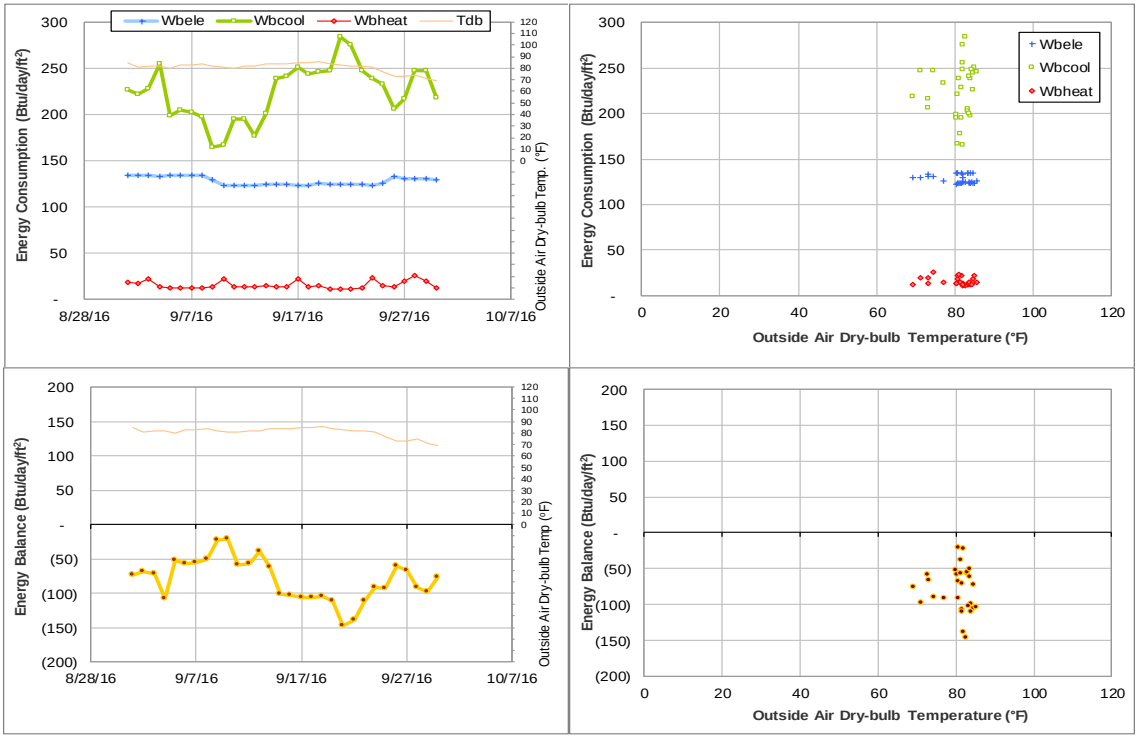


Figure IV-173 West Campus Parking Garage TAMU BLDG # 1559 Energy Balance Plot during September 2016

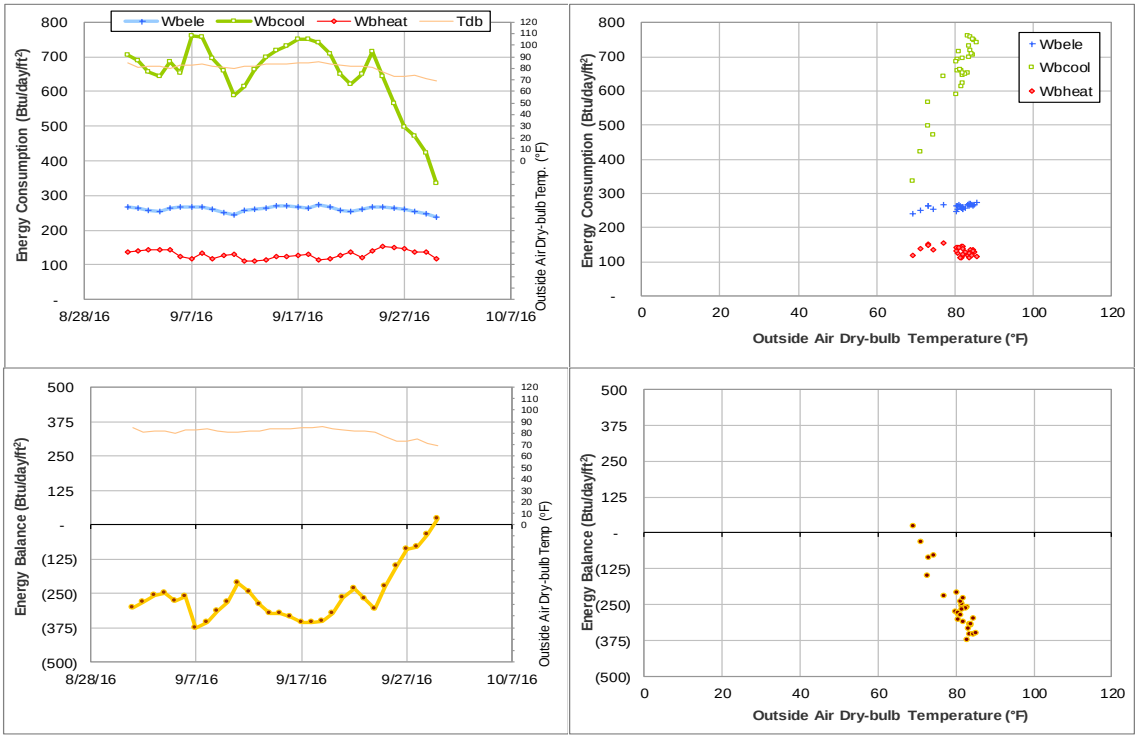


Figure IV-174 Student Recreation Center TAMU BLDG # 1560 Energy Balance Plot during September 2016

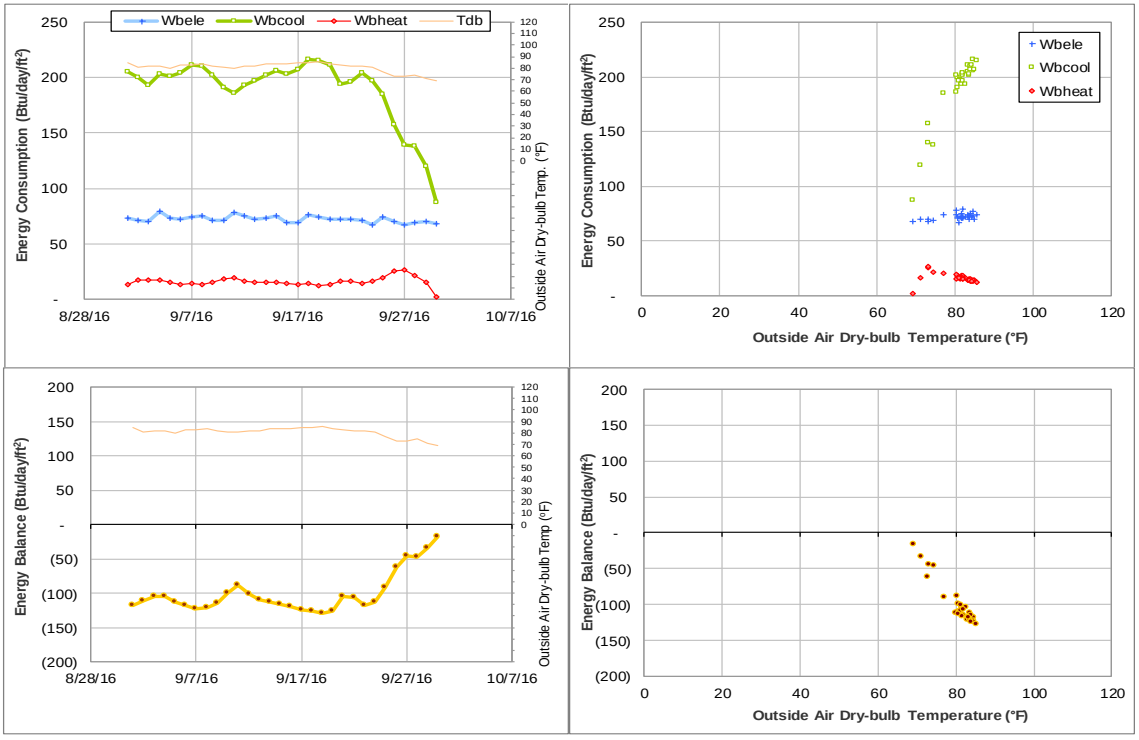


Figure IV-175 White Creek Apartment 1 and White Creek Apts Activity Center TAMU BLDG # 1589 Energy Balance Plot during September 2016

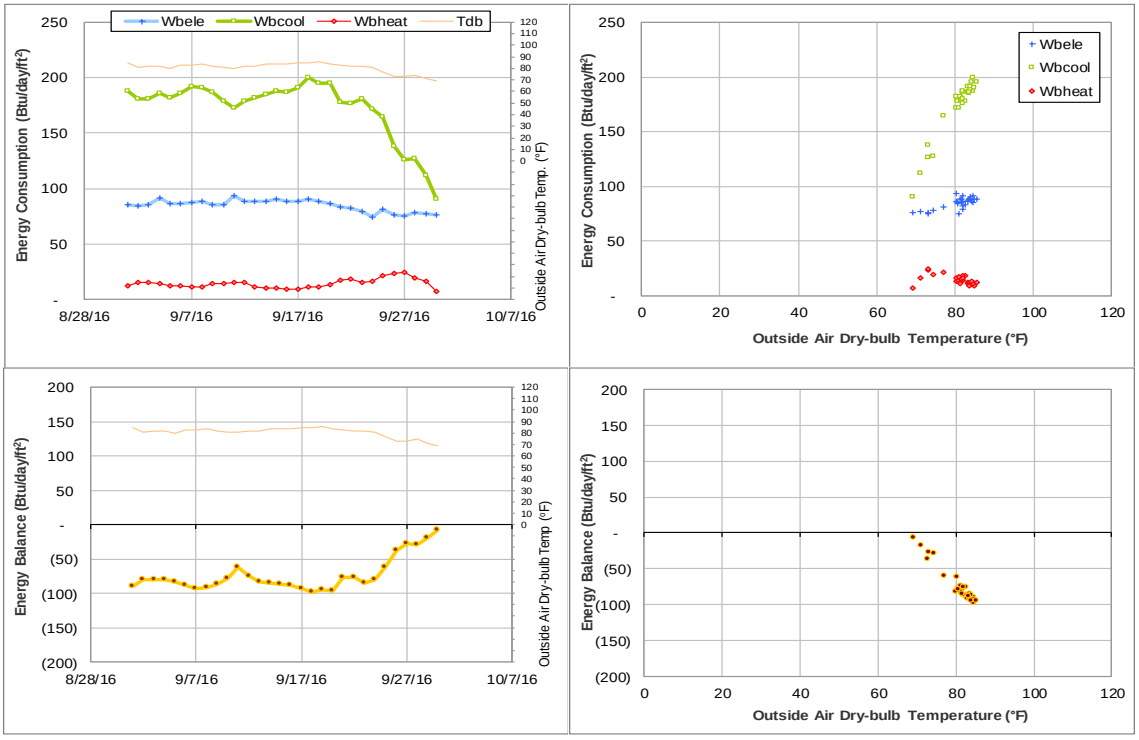


Figure IV-176 White Creek Apartment 2 TAMU BLDG # 1591 Energy Balance Plot during September 2016

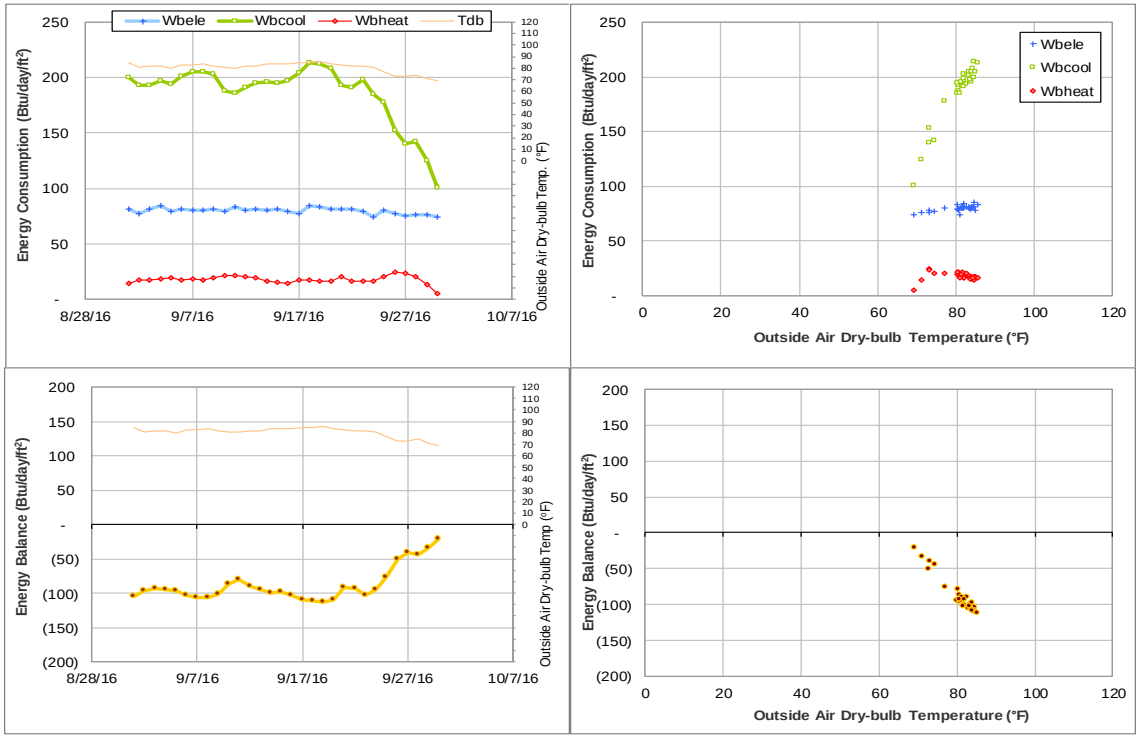


Figure IV-177 White Creek Apartment 3 TAMU BLDG # 1592 Energy Balance Plot during September 2016

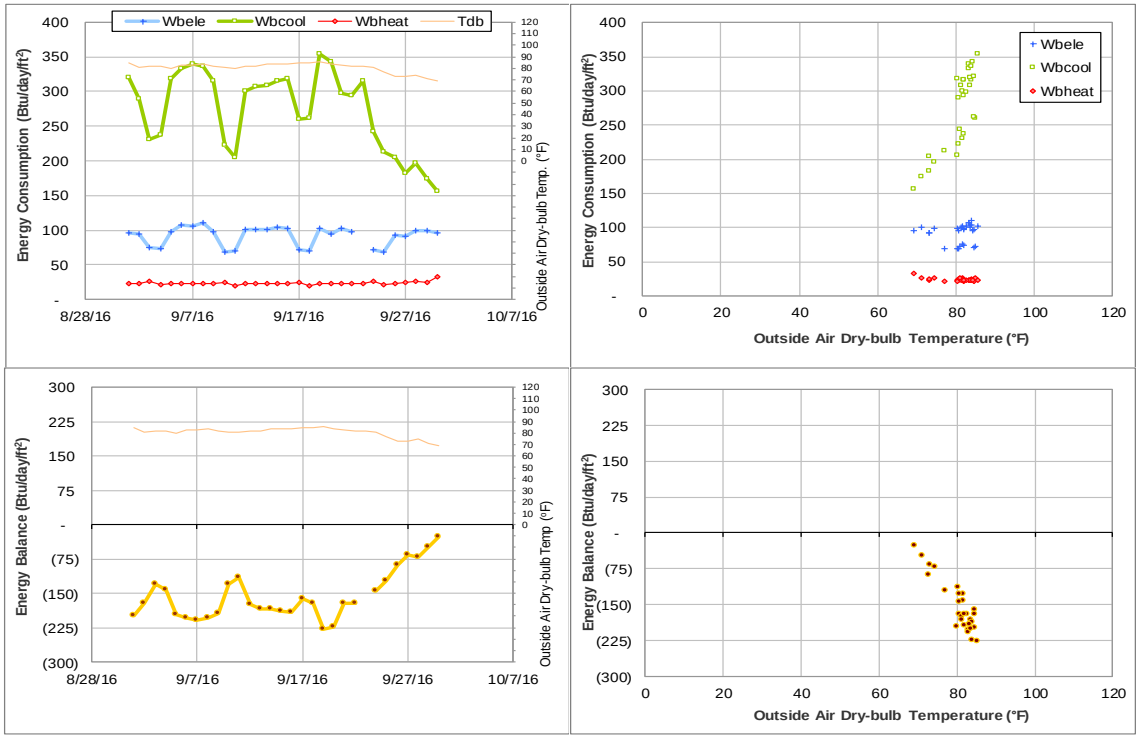


Figure IV-178 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during September 2016

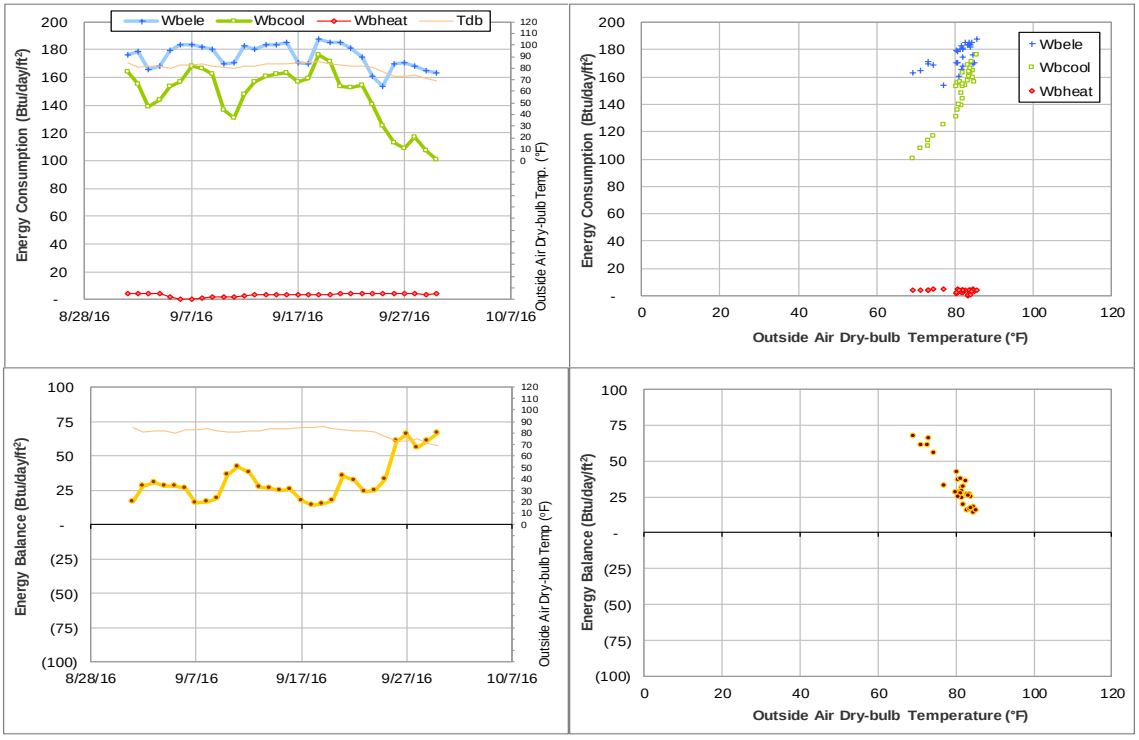


Figure IV-179 International Ocean Discovery Building TAMU BLDG # 1601 Energy Balance Plot during September 2016

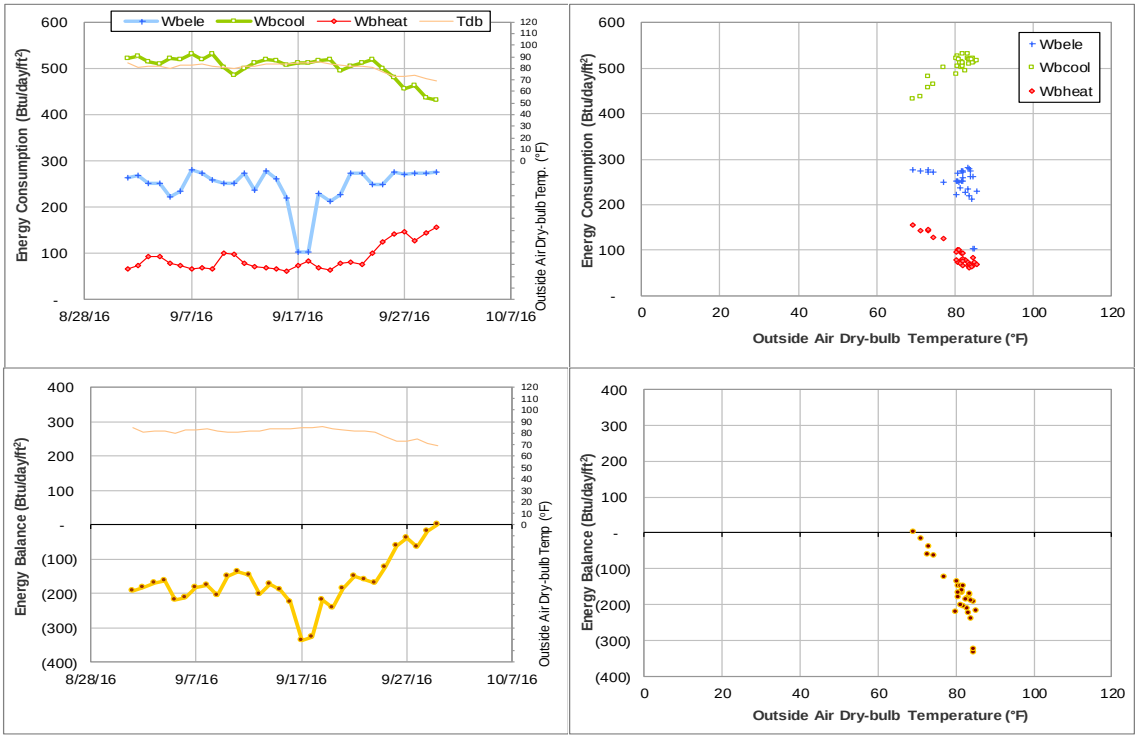


Figure IV-180 Offshore Technology Research Center TAMU BLDG # 1604 Energy Balance Plot during September 2016

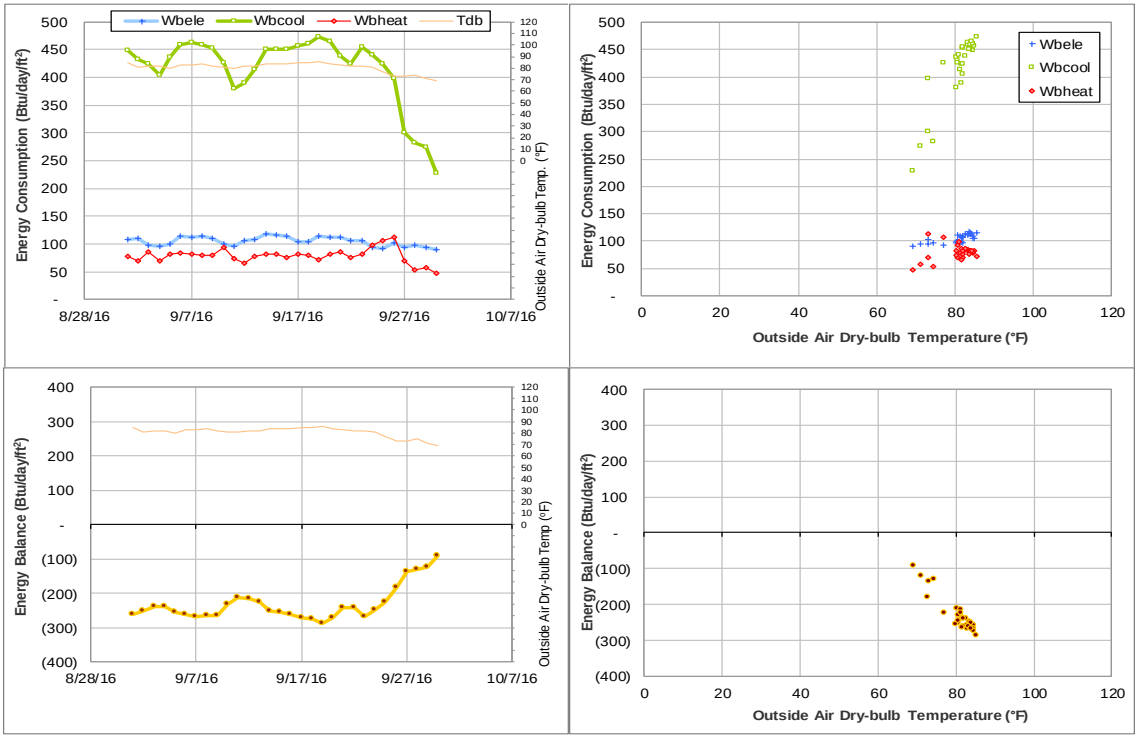


Figure IV-181 George Bush Presidential Library & Museum TAMU BLDG # 1606 Energy Balance Plot during September 2016

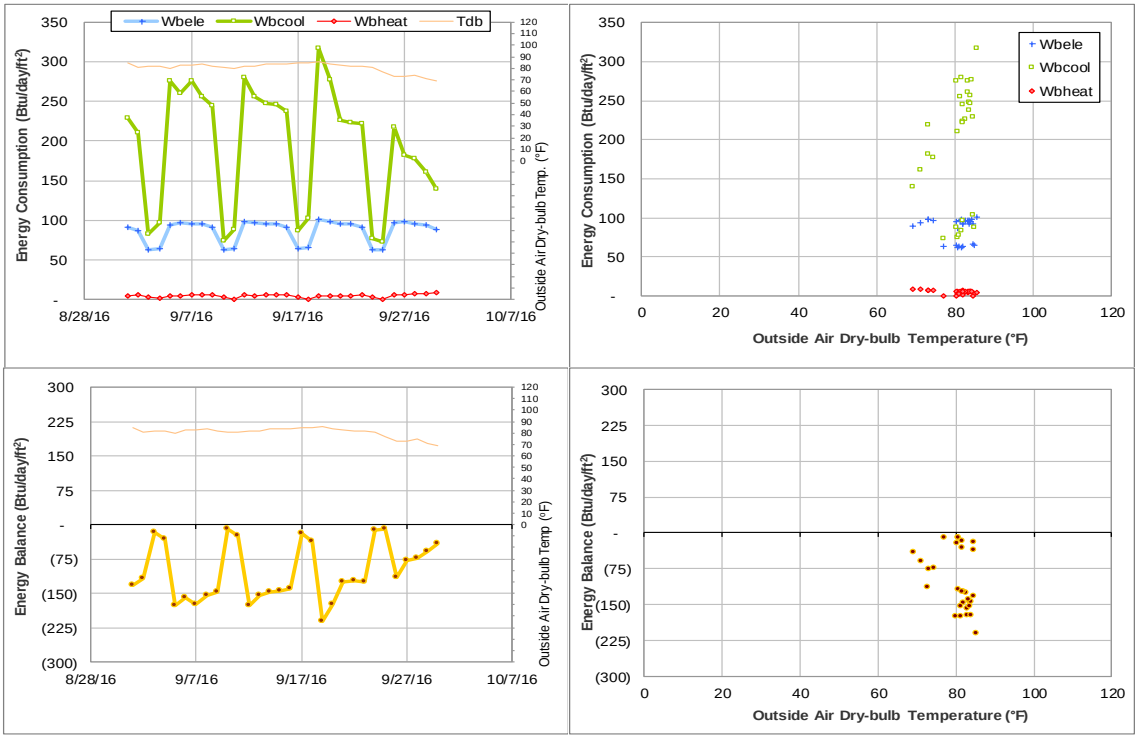


Figure IV-182 Allen Building TAMU BLDG # 1607 Energy Balance Plot during September 2016

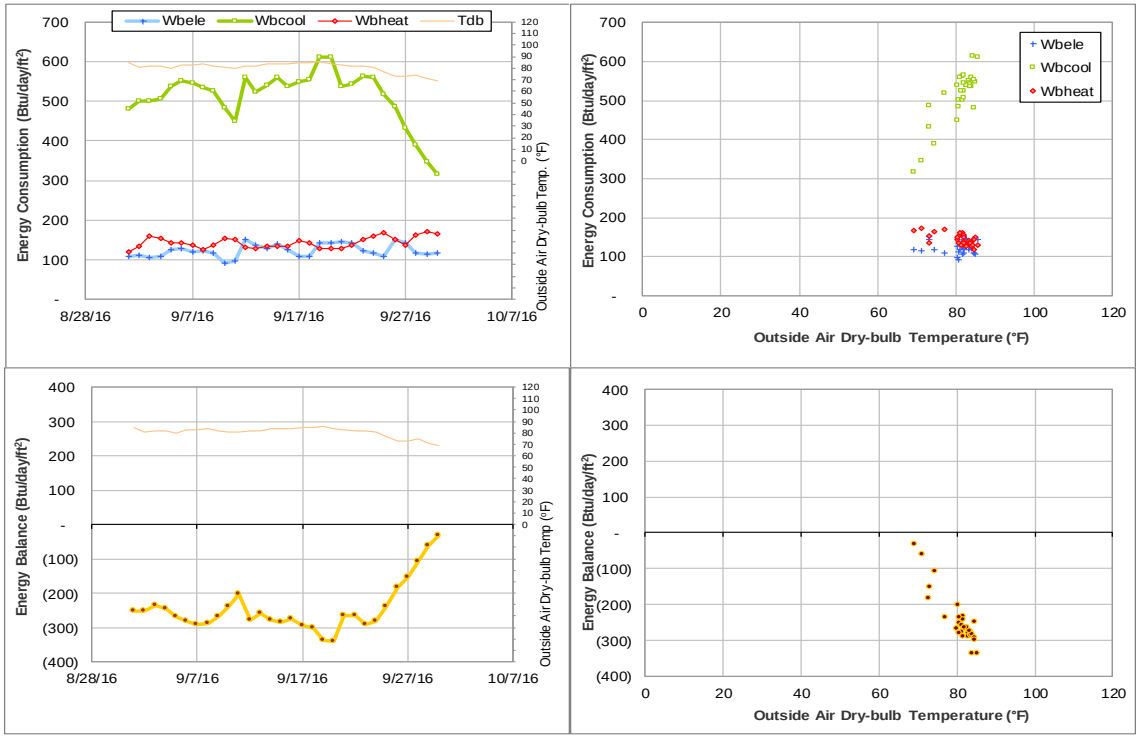


Figure IV-183 Annenberg Presidential Conference Center TAMU BLDG # 1608 Energy Balance Plot during September 2016

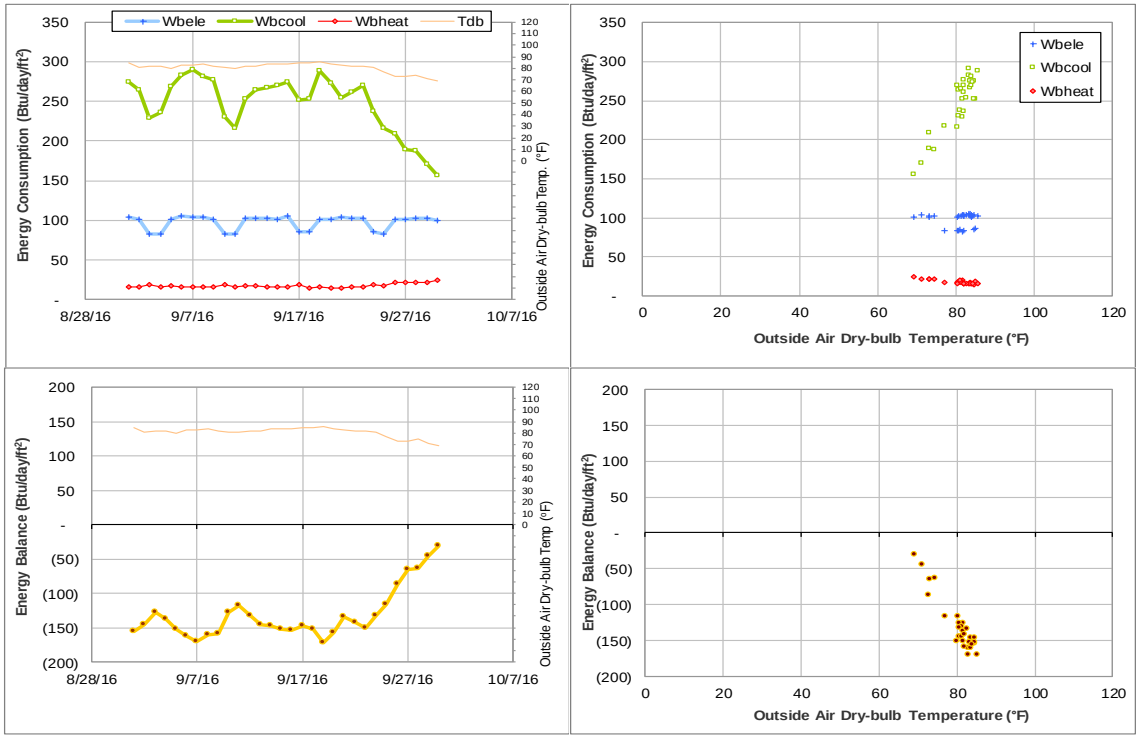


Figure IV-184 TTI Headquarters TAMU BLDG # 1609 Energy Balance Plot during September 2016

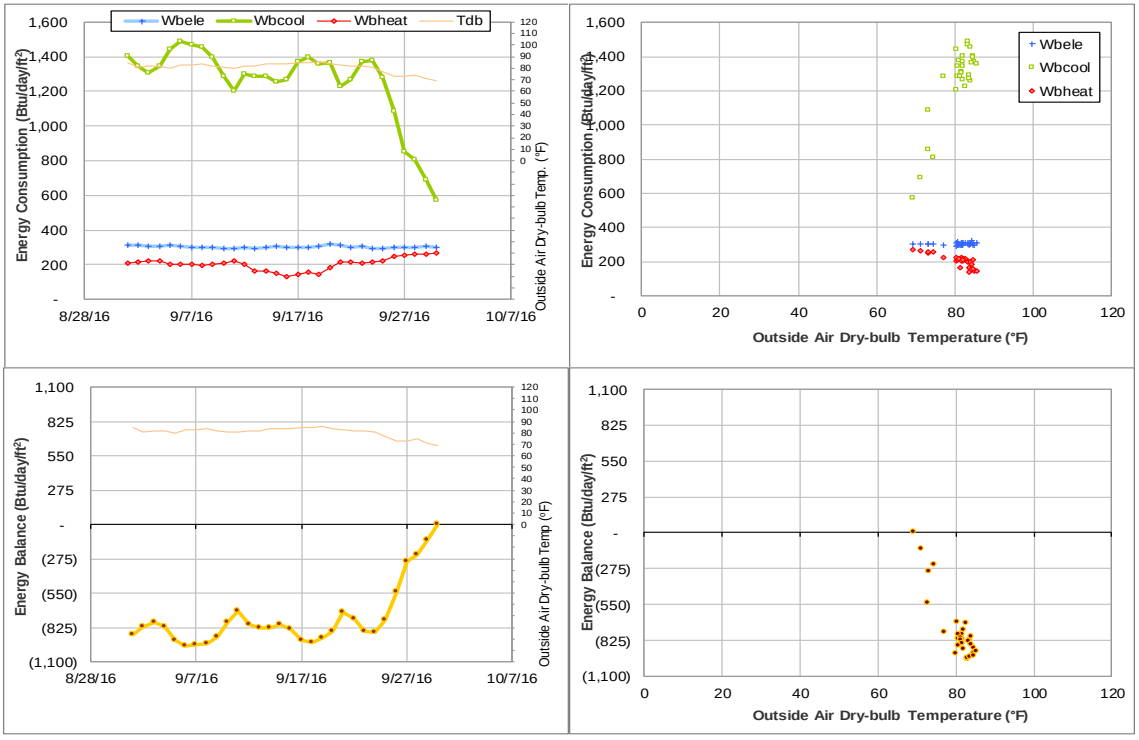


Figure IV-185 Engineering Research Building TAMU BLDG # 1611 Energy Balance Plot during September 2016

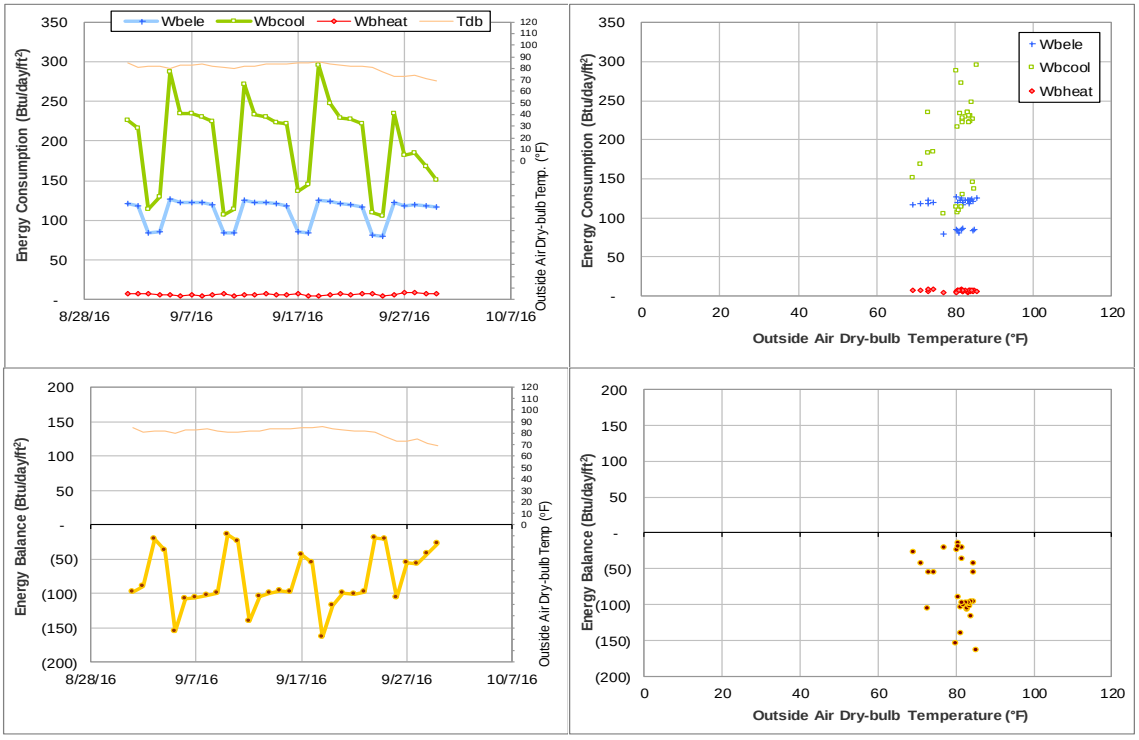


Figure IV-186 General Services Complex TAMU BLDG # 1800 Energy Balance Plot during September 2016

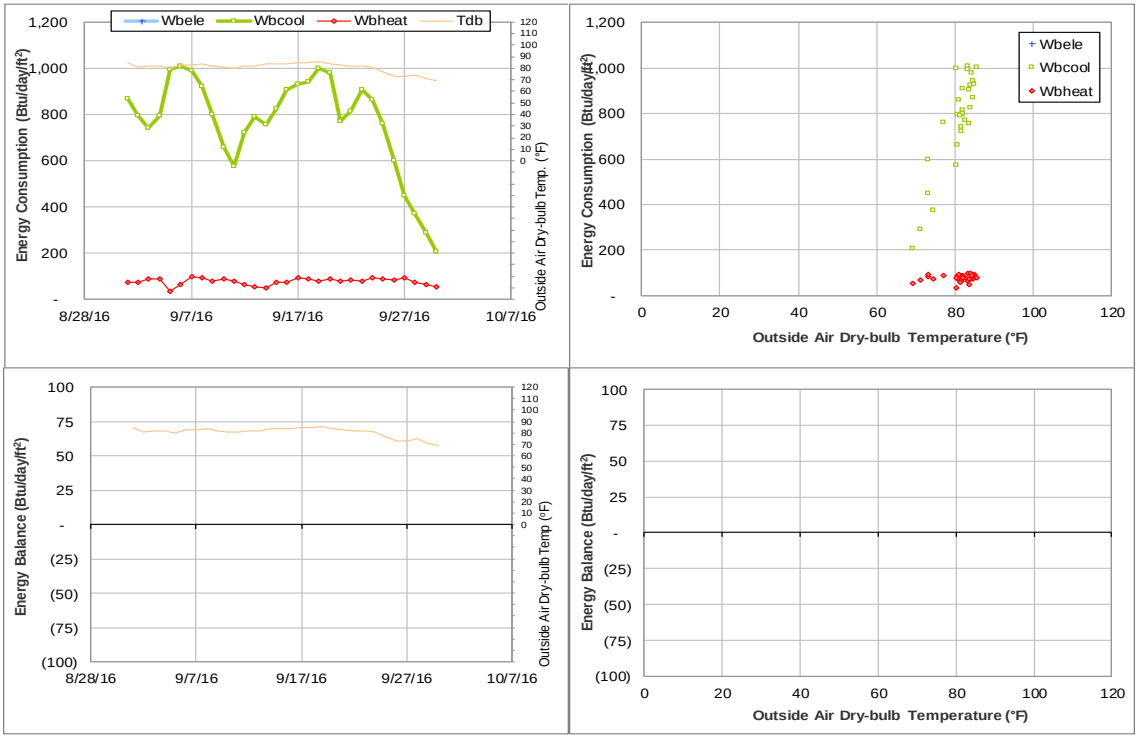


Figure IV-187 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during September 2016

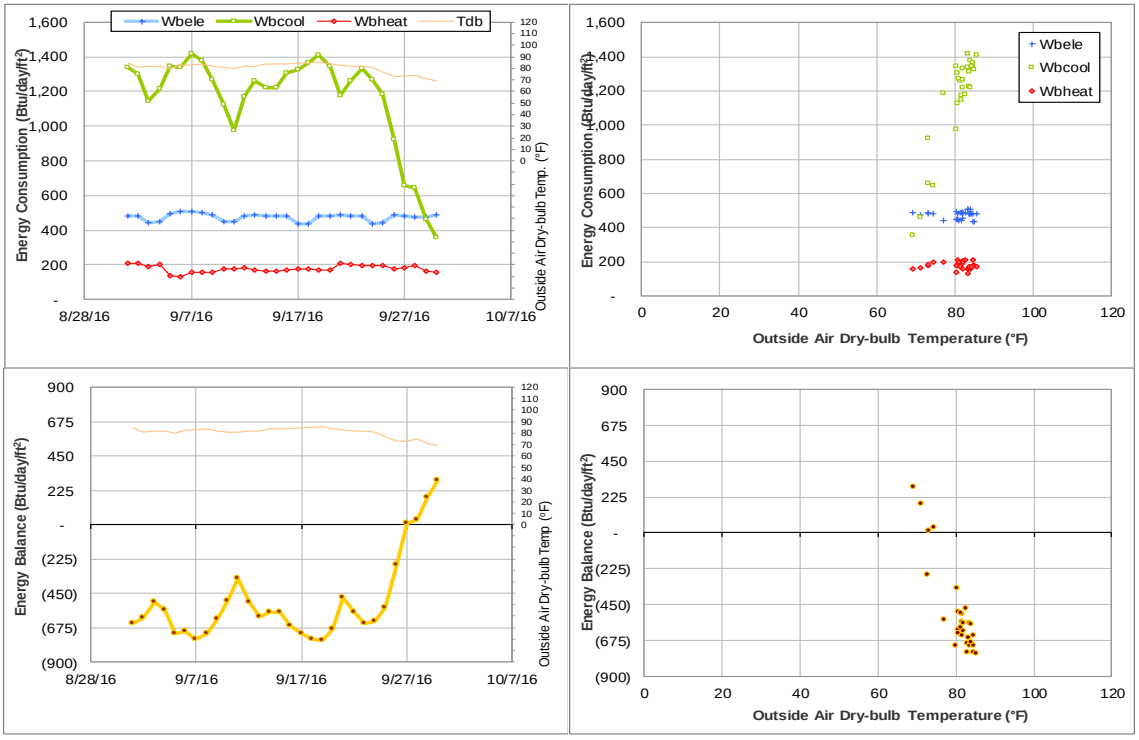


Figure IV-188 Vet Med Research Bldg Addition TAMU BLDG # 1811 Energy Balance Plot during September 2016

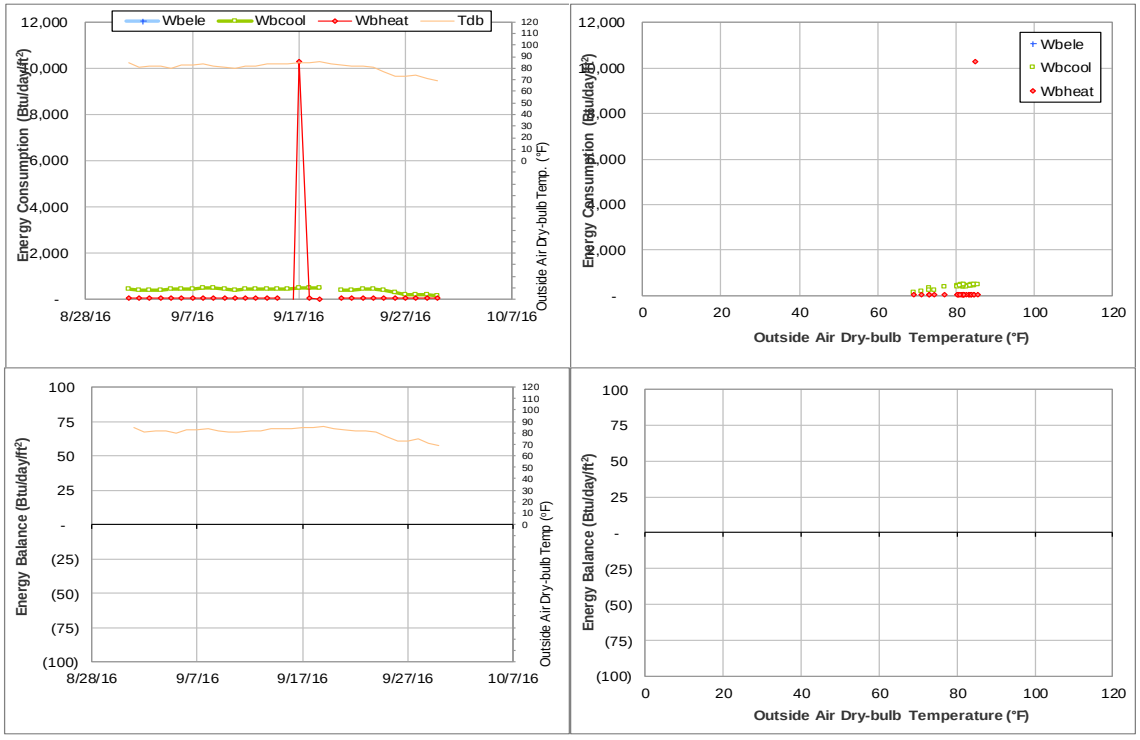


Figure IV-189 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during September 2016

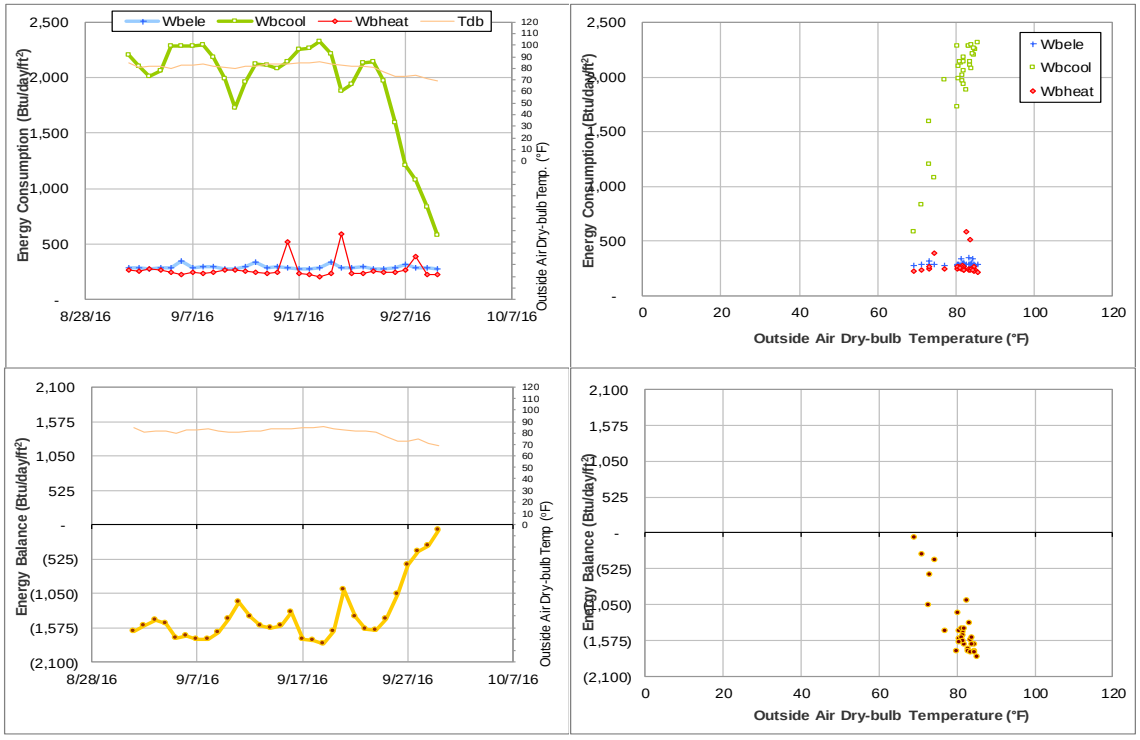


Figure IV-190 Texas Institute for Genomic Medicine TAMU BLDG # 1900 Energy Balance Plot during September 2016

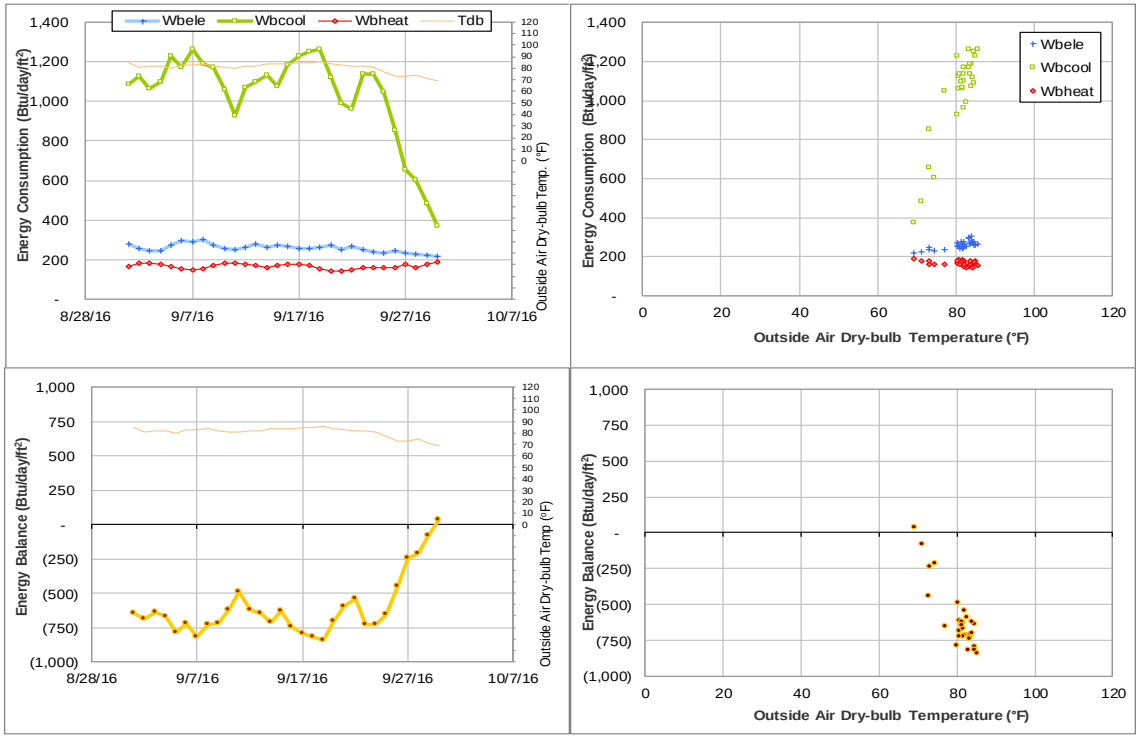


Figure IV-191 Texas A&M Institute for Preclinical Studies A TAMU BLDG # 1904 Energy Balance Plot during September 2016

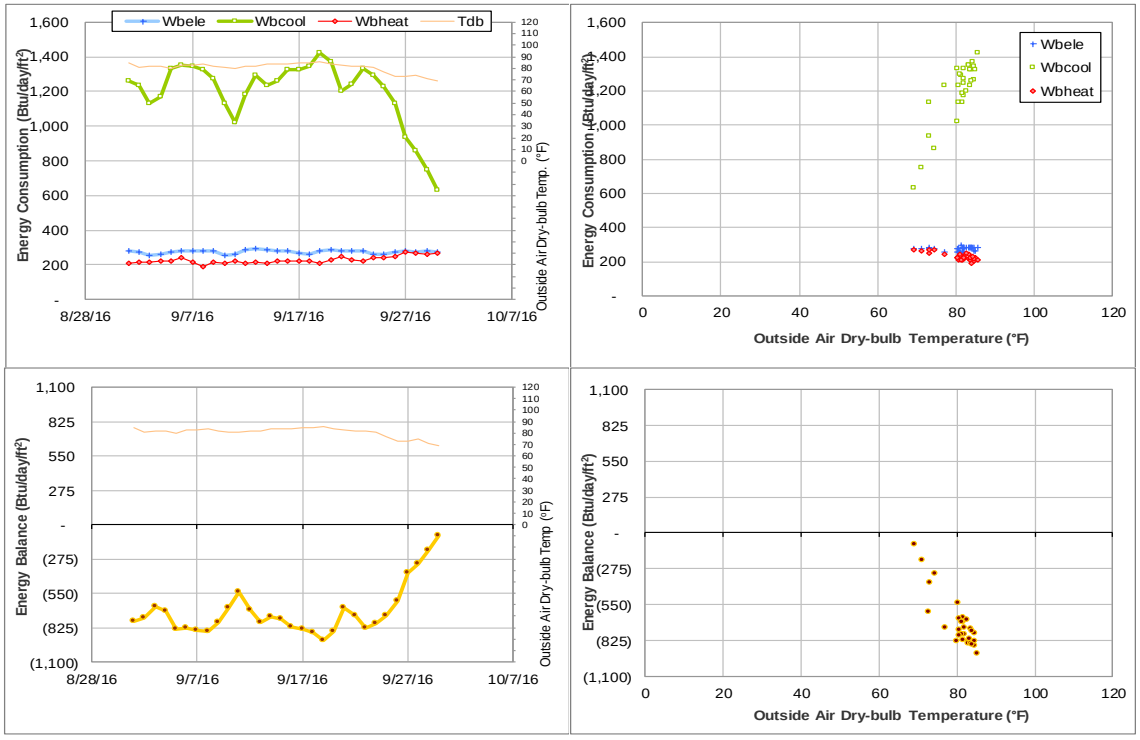


Figure IV-192 National Center for Therapeutics Manufacturing TAMU BLDG # 1910 Energy Balance Plot during September 2016

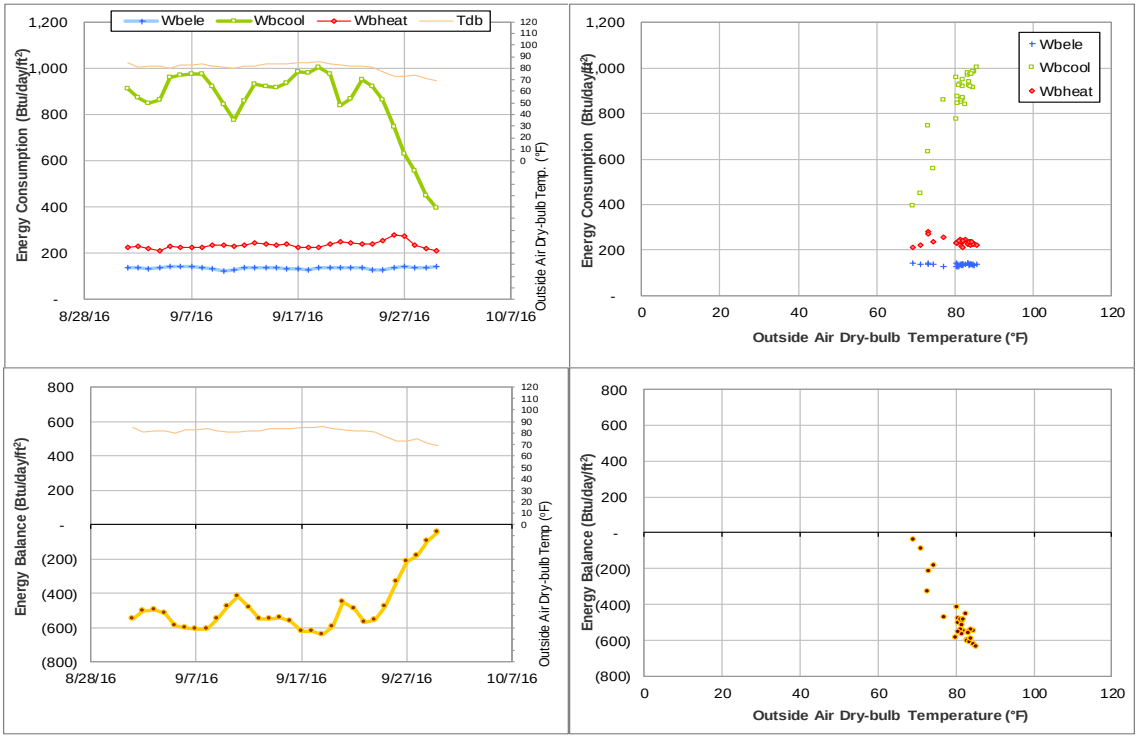


Figure IV-193 Multi-Species Research Building TAMU BLDG # 1911 Energy Balance Plot during September 2016

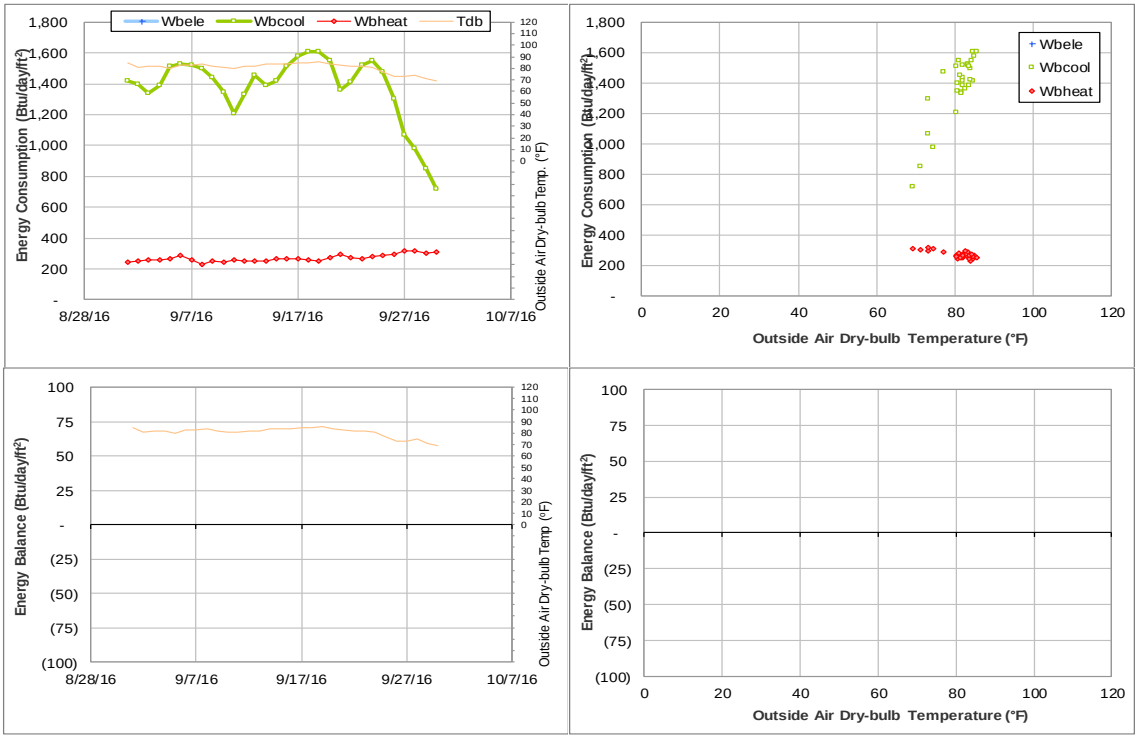


Figure IV-194 NCTM Manufacturing Building TAMU BLDG # 10226 Energy Balance Plot during September 2016

V. Energy Balance Plots with Filled-in data for September 2016 Consumption

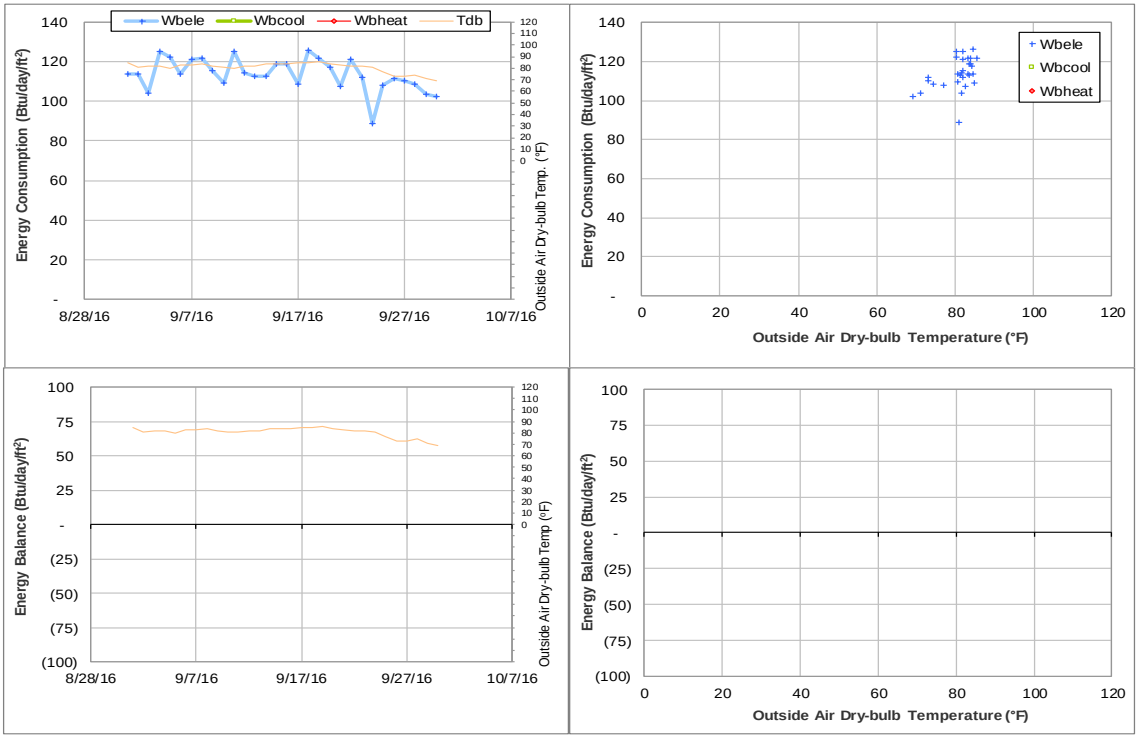


Figure V-1 Spence Hall Dorm 1 TAMU BLDG # 400 Energy Balance Plot during September 2016

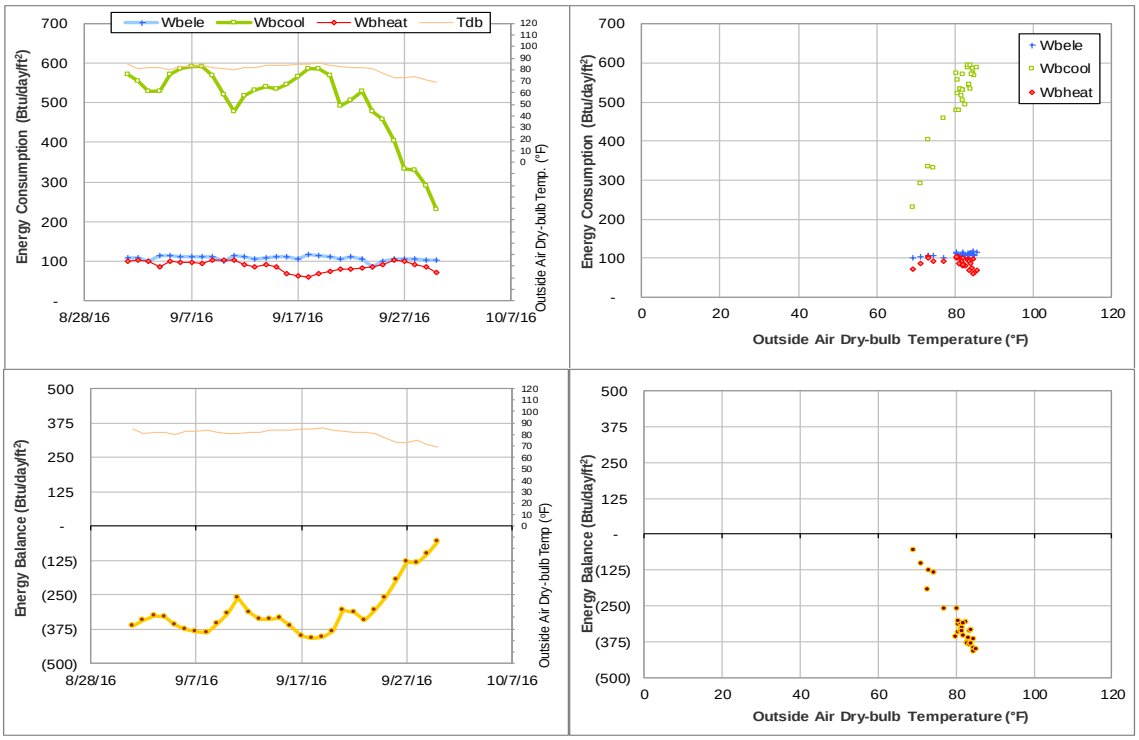


Figure V-2 Spence Hall, Briggs Hall, and Ash II LLC TAMU BLDG # 400 Energy Balance Plot during September 2016

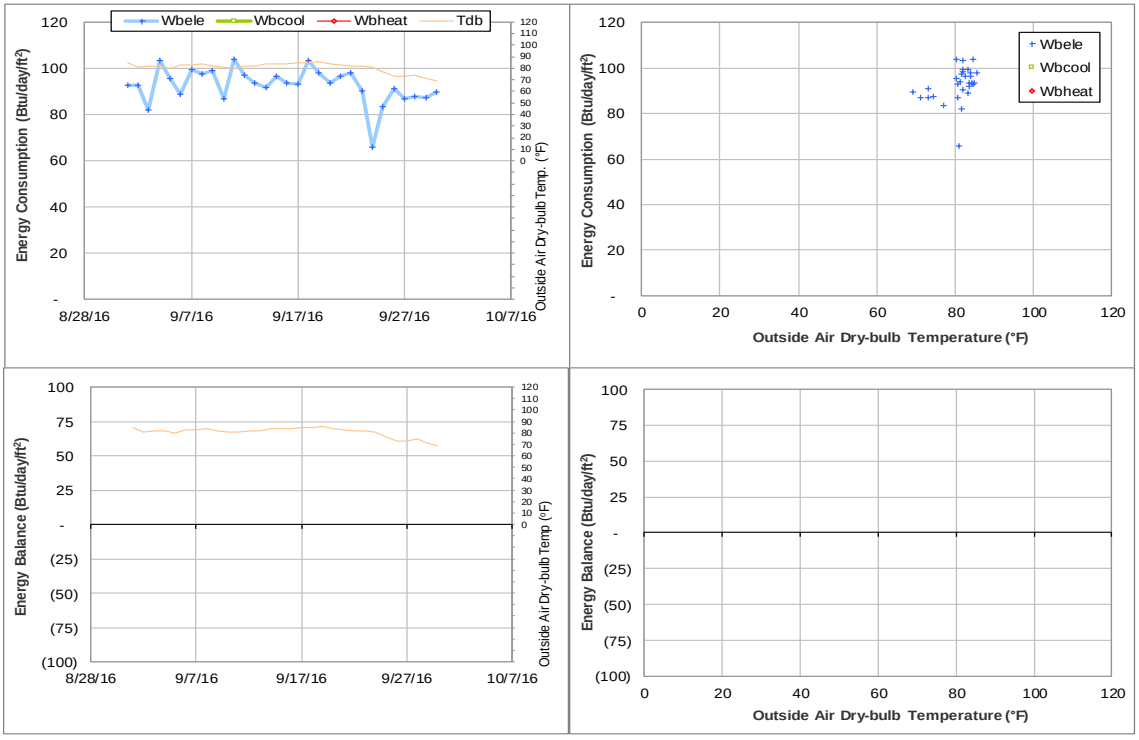


Figure V-3 Kiest Hall Dorm 2 TAMU BLDG # 401 Energy Balance Plot during September 2016

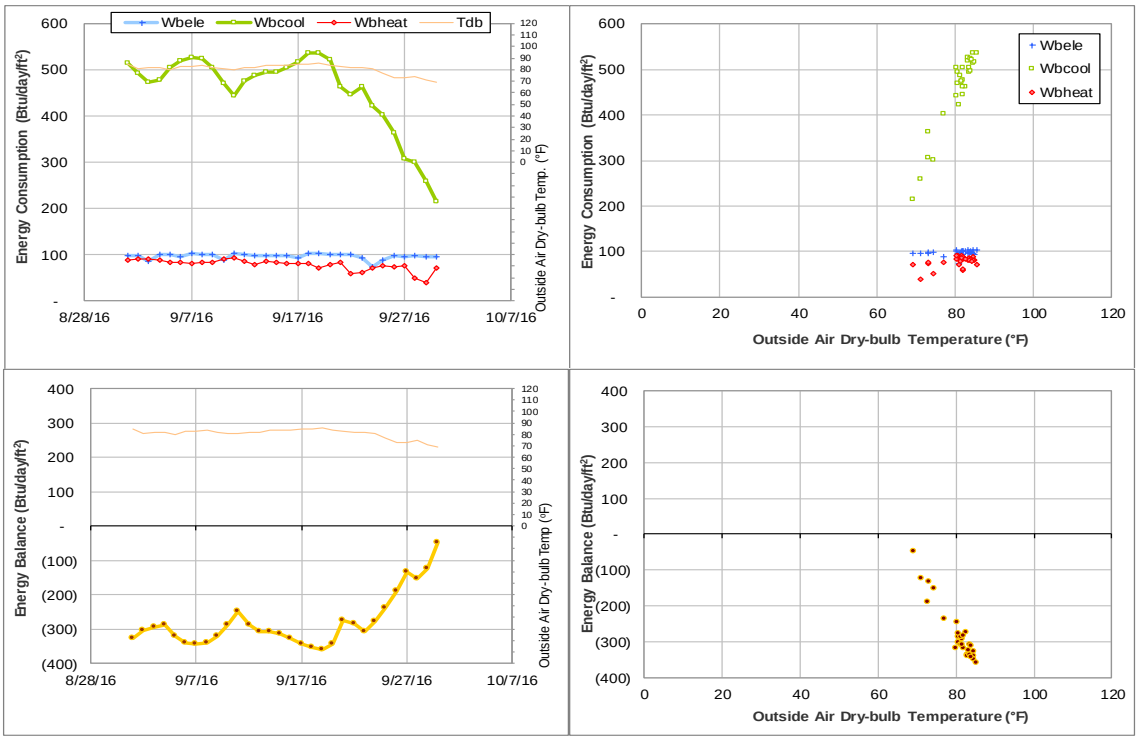


Figure V-4 Kiest Hall, Fountain Hall, and Plank LLC TAMU BLDG # 401 Energy Balance Plot during September 2016

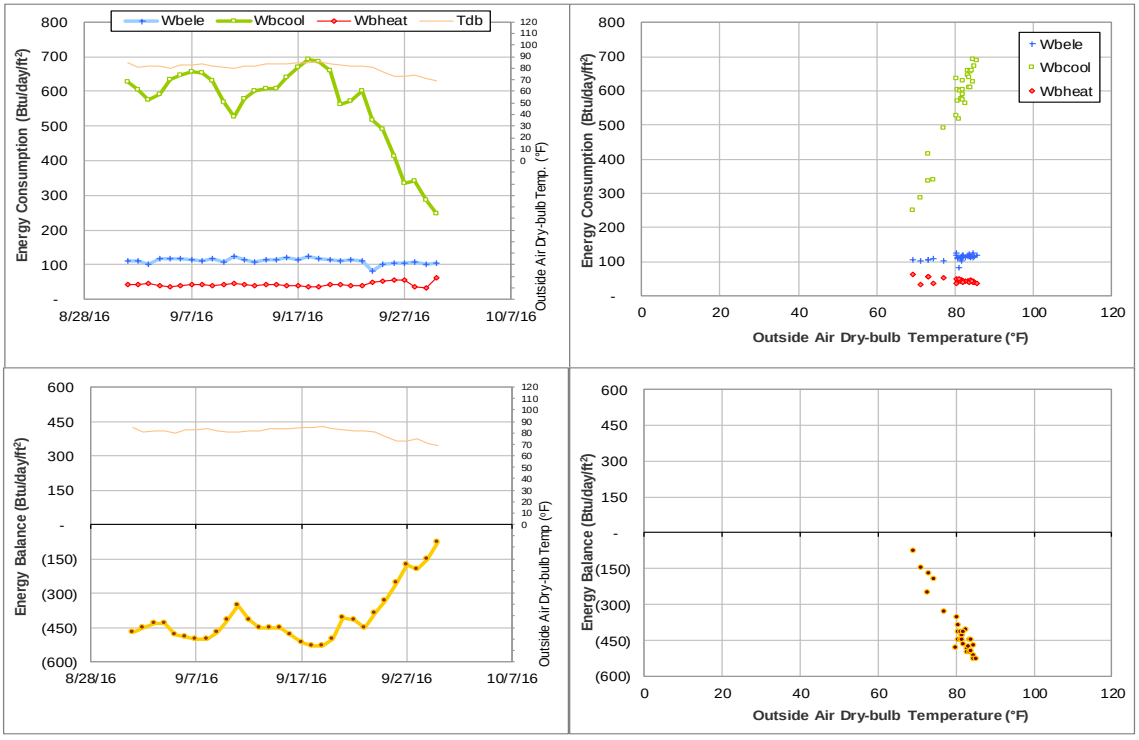


Figure V-5 Briggs Hall Dorm 3 TAMU BLDG # 402 Energy Balance Plot during September 2016

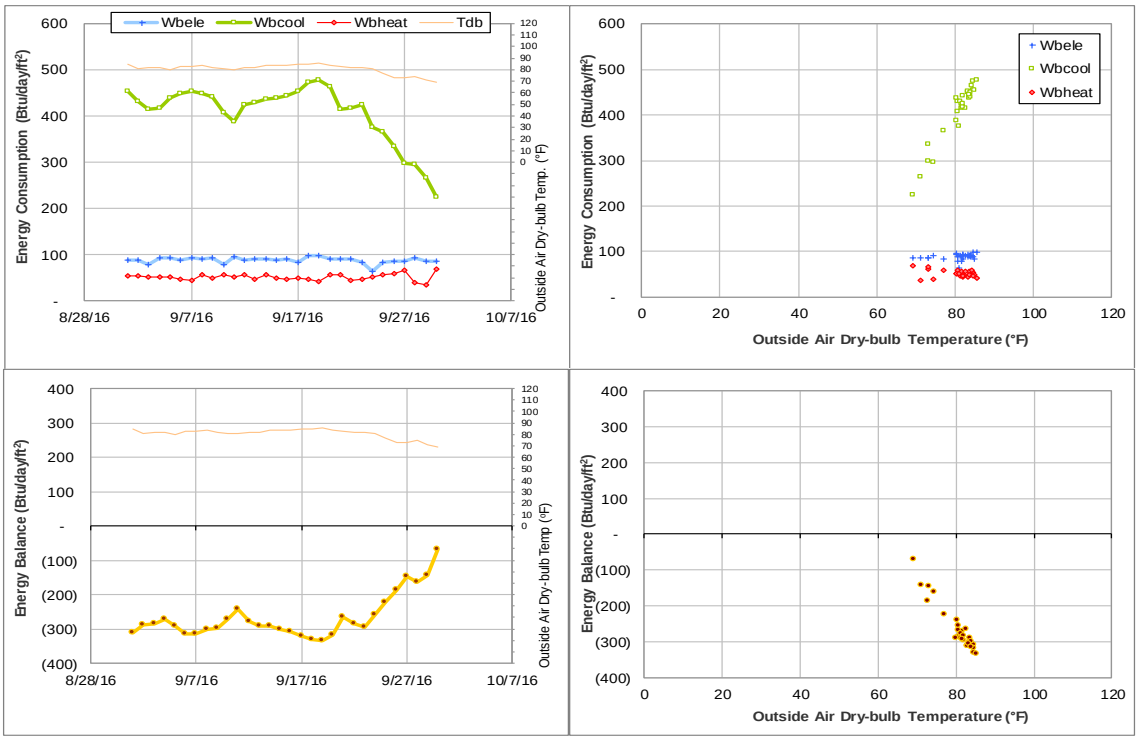


Figure V-6 Fountain Hall Dorm 4 TAMU BLDG # 403 Energy Balance Plot during September 2016

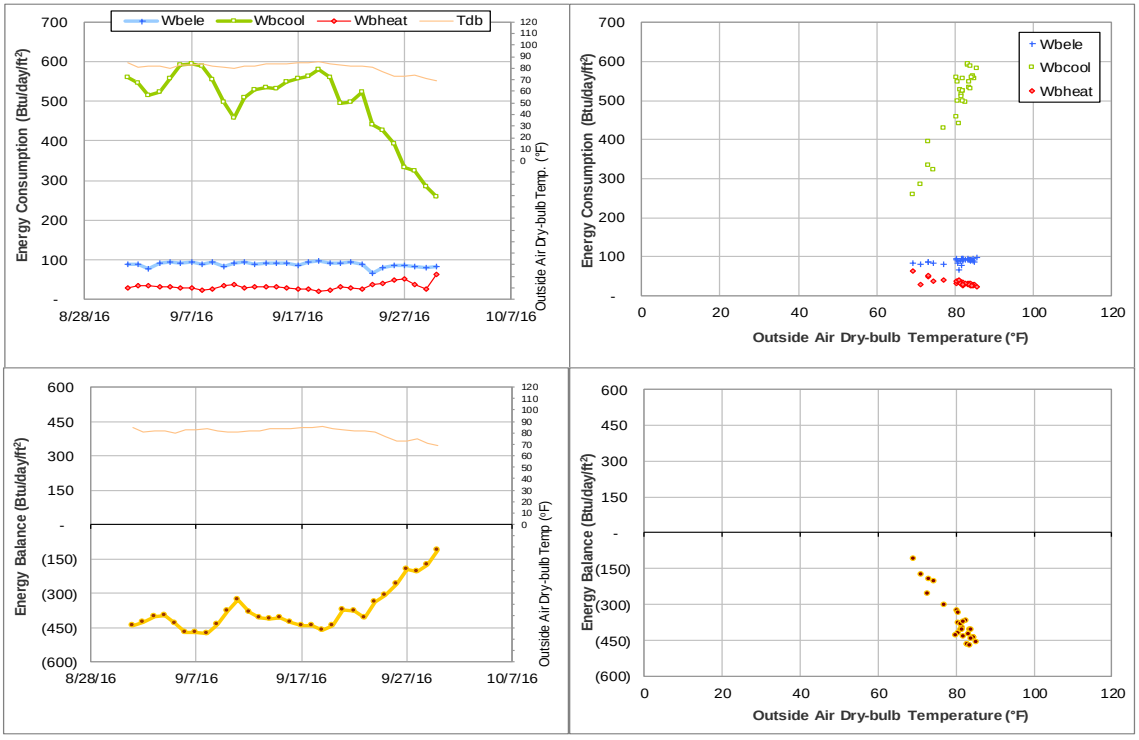


Figure V-7 Gainer Hall Dorm 5 TAMU BLDG # 404 Energy Balance Plot during September 2016

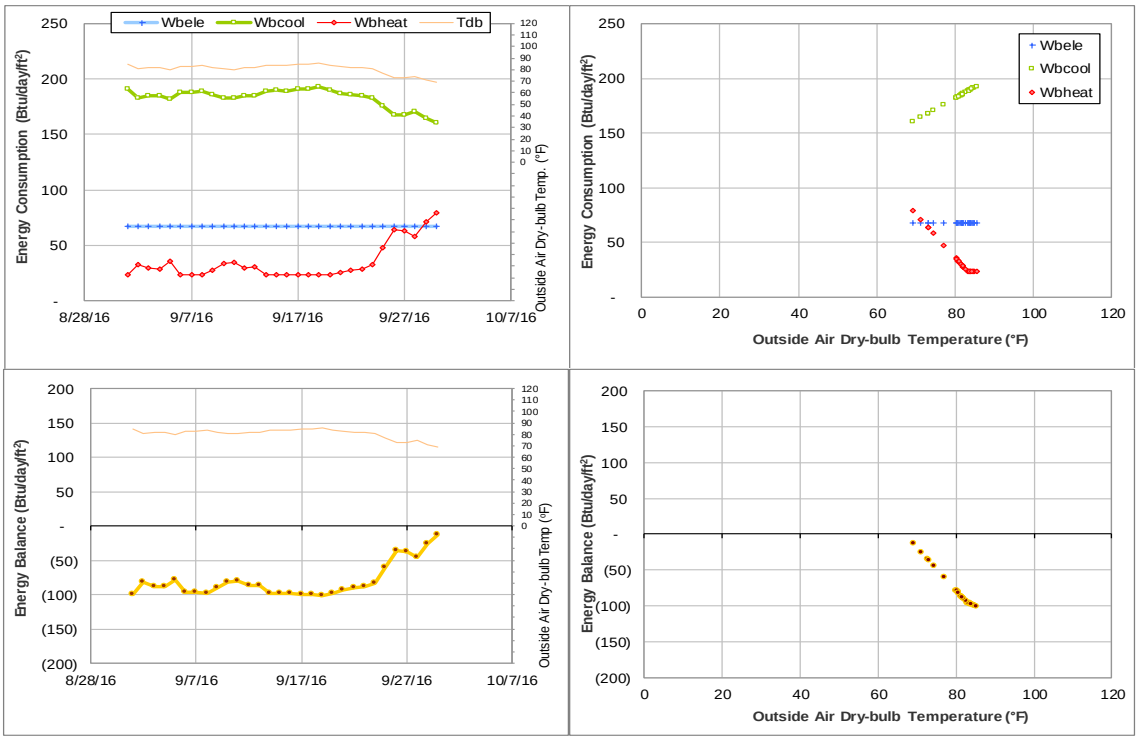


Figure V-8 Legett Residence Hall TAMU BLDG # 419 Energy Balance Plot during September 2016

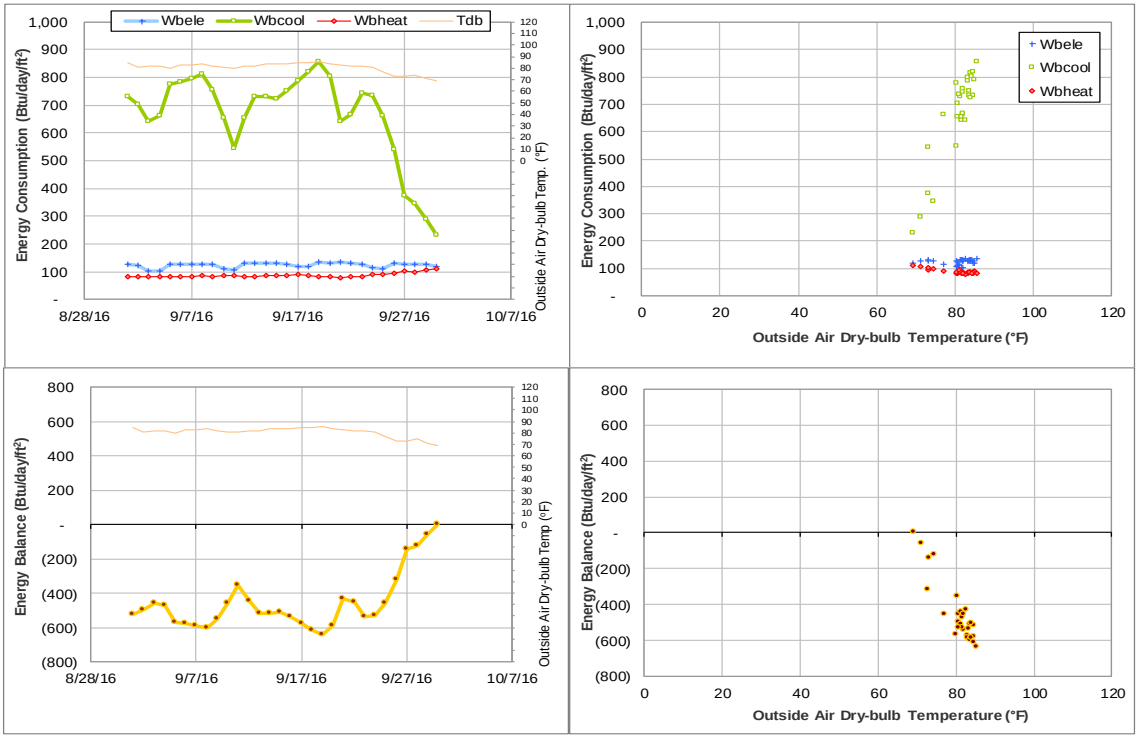


Figure V-9 Reed-McDonald and Engineering Innovation Center TAMU BLDG # 436 Energy Balance Plot during September 2016

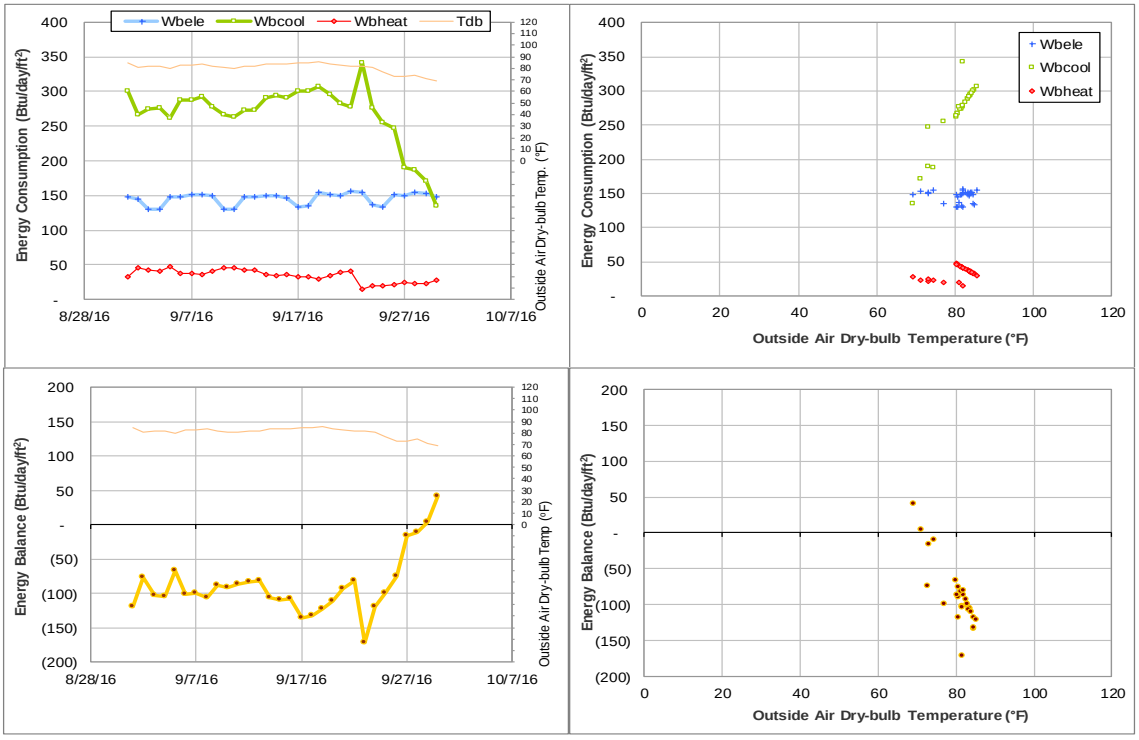


Figure V-10 Oceanography & Meteorology Building TAMU BLDG # 443 Energy Balance Plot during September 2016

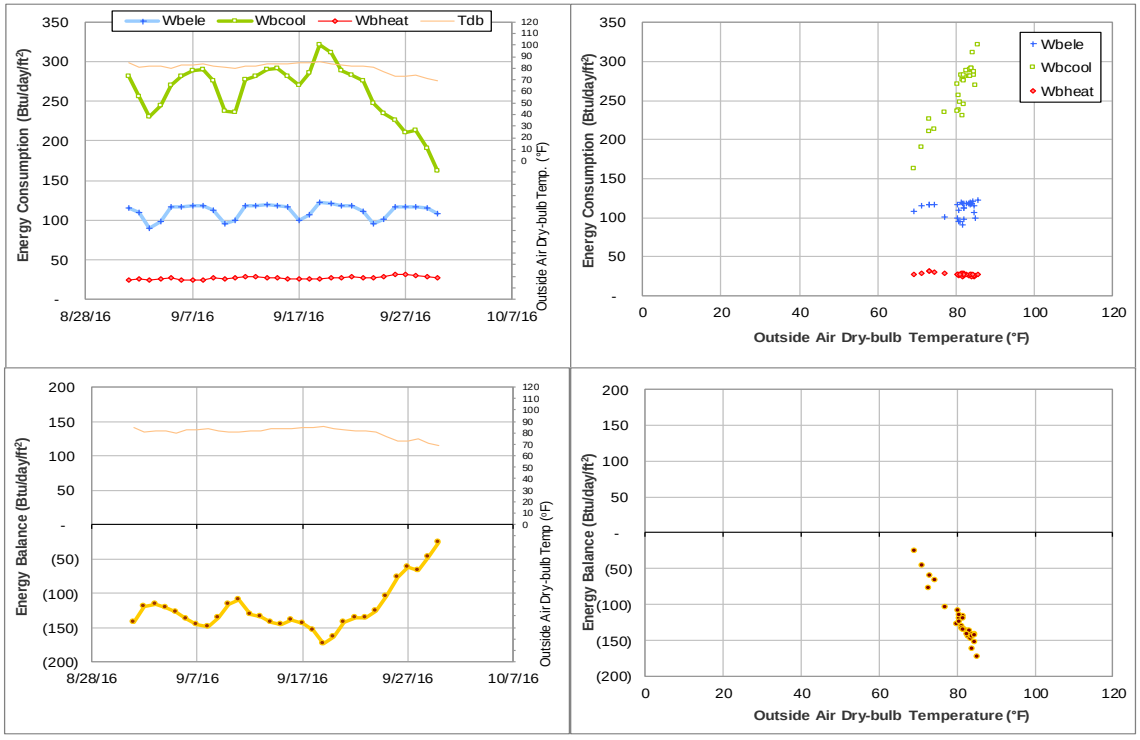


Figure V-11 Evans Library TAMU BLDG # 468 Energy Balance Plot during September 2016

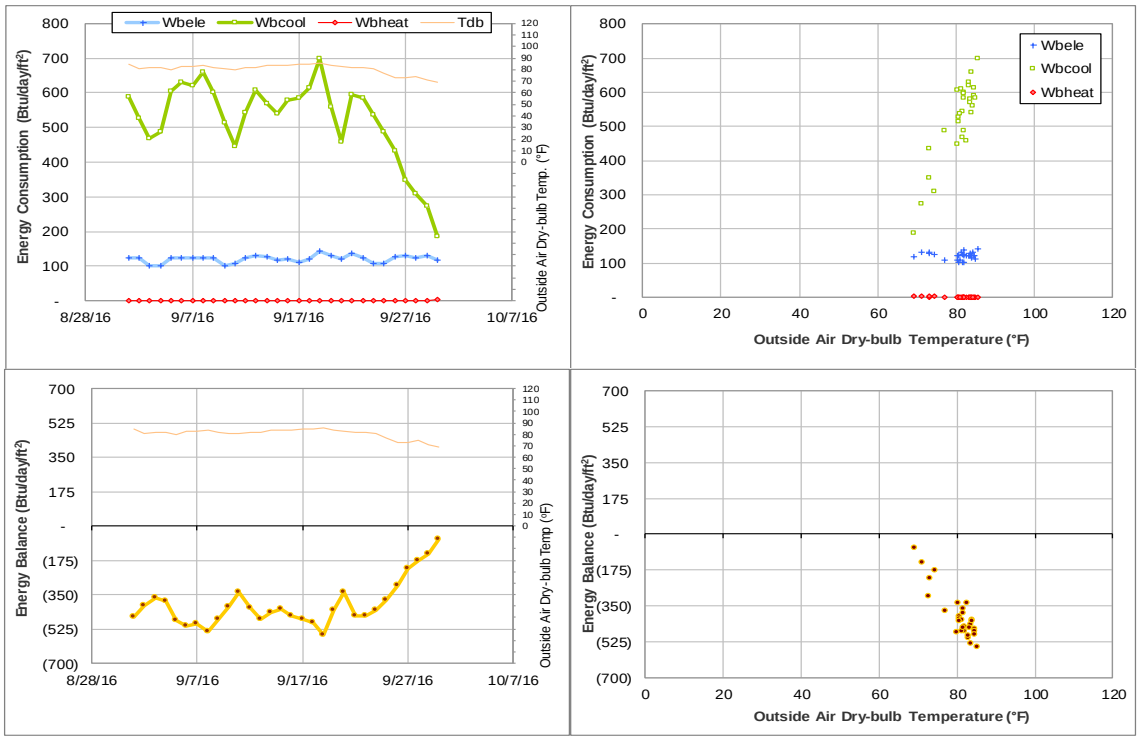


Figure V-12 Francis Hall TAMU BLDG # 476 Energy Balance Plot during September 2016

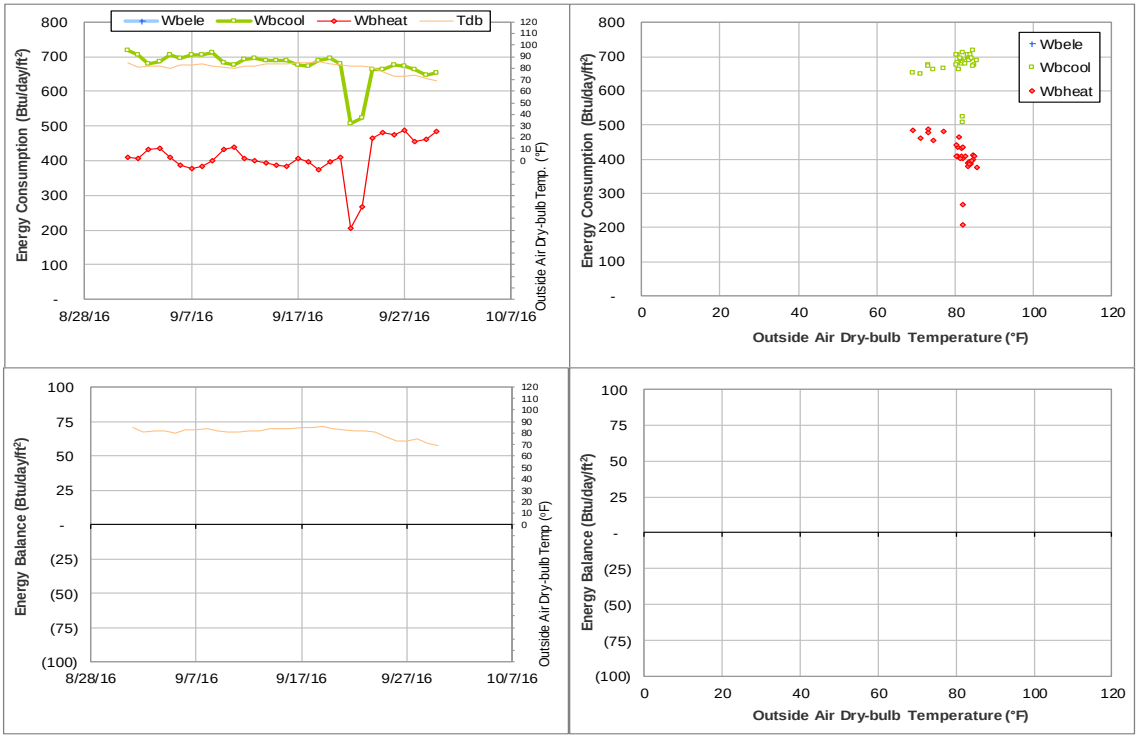


Figure V-13 Heaton Hall TAMU BLDG # 481 Energy Balance Plot during September 2016

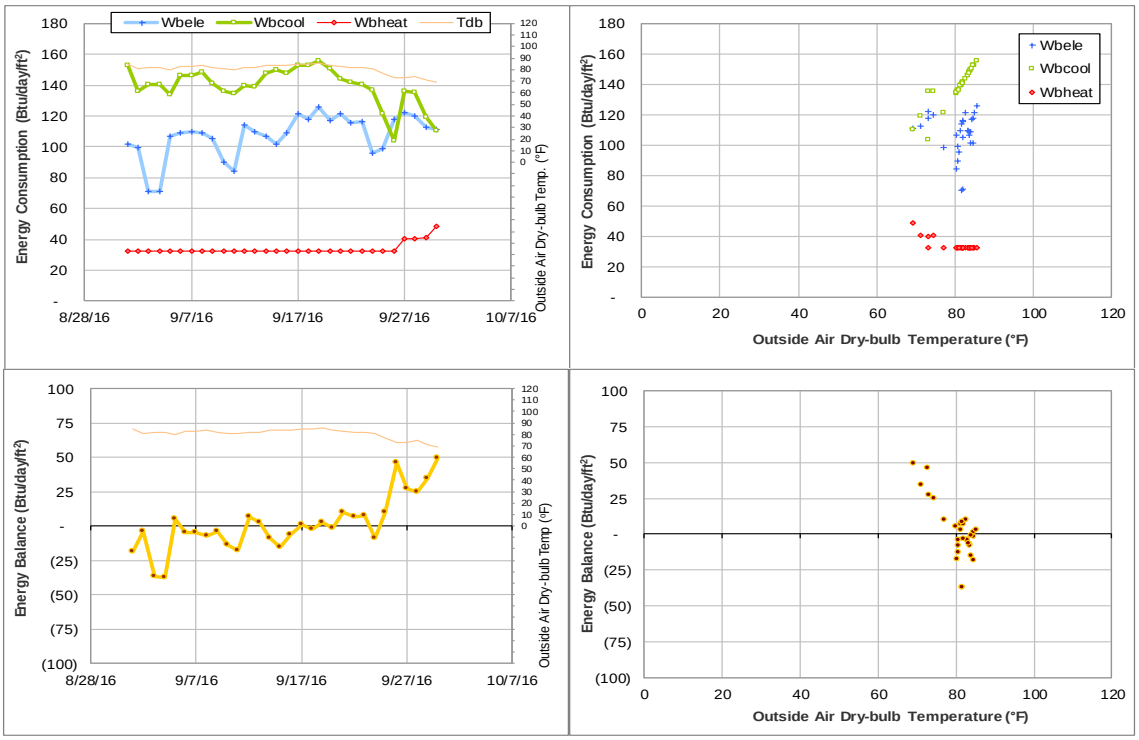


Figure V-14 Engineering Innovation Center TAMU BLDG # 499 Energy Balance Plot during September 2016

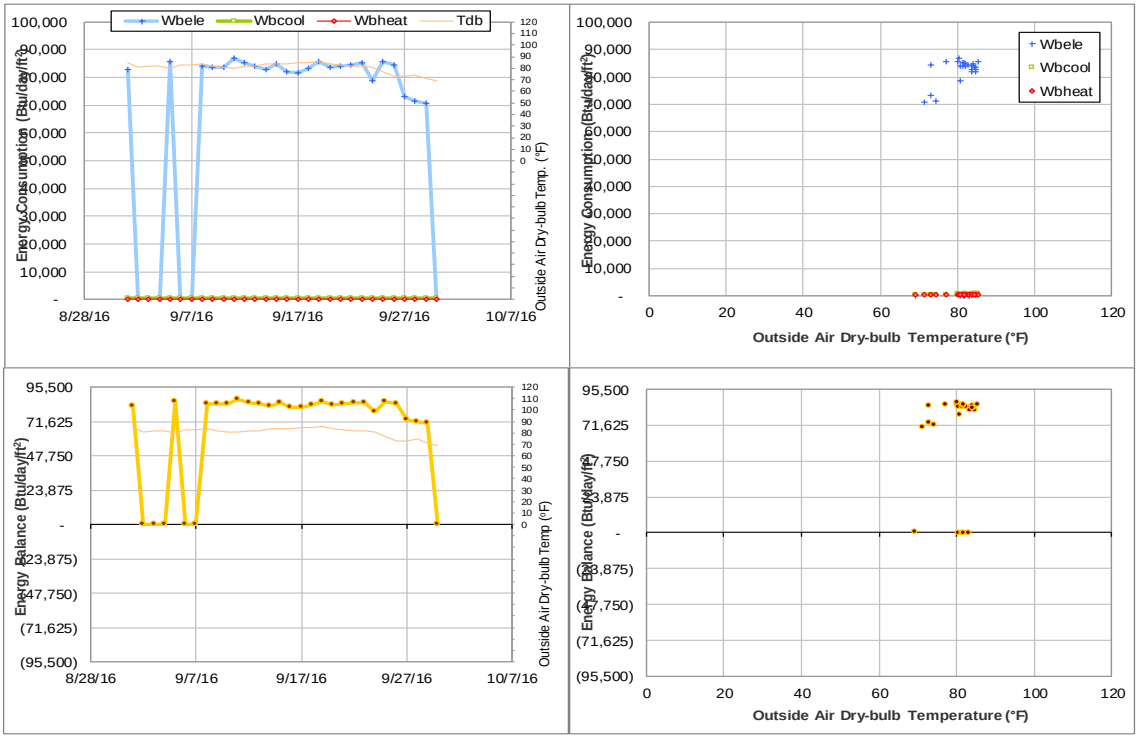


Figure V-15 Haas Residence Hall TAMU BLDG # 549 Energy Balance Plot during September 2016

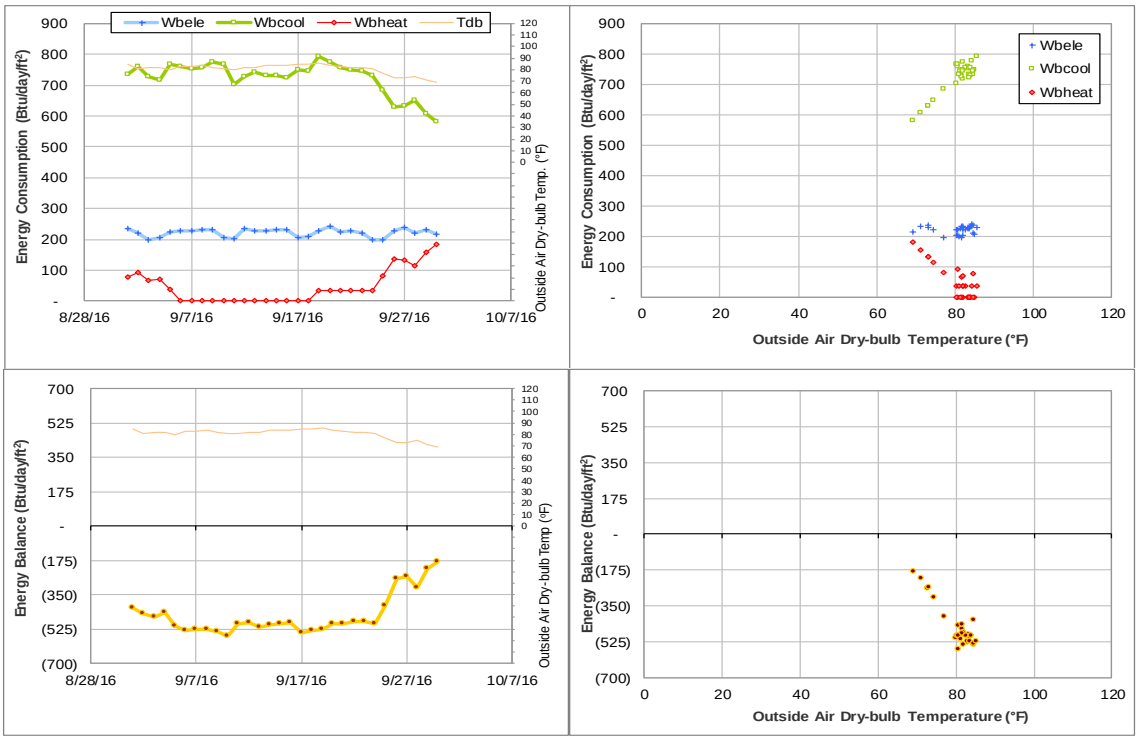


Figure V-16 Vivarium III TAMU BLDG # 1020 Energy Balance Plot during September 2016

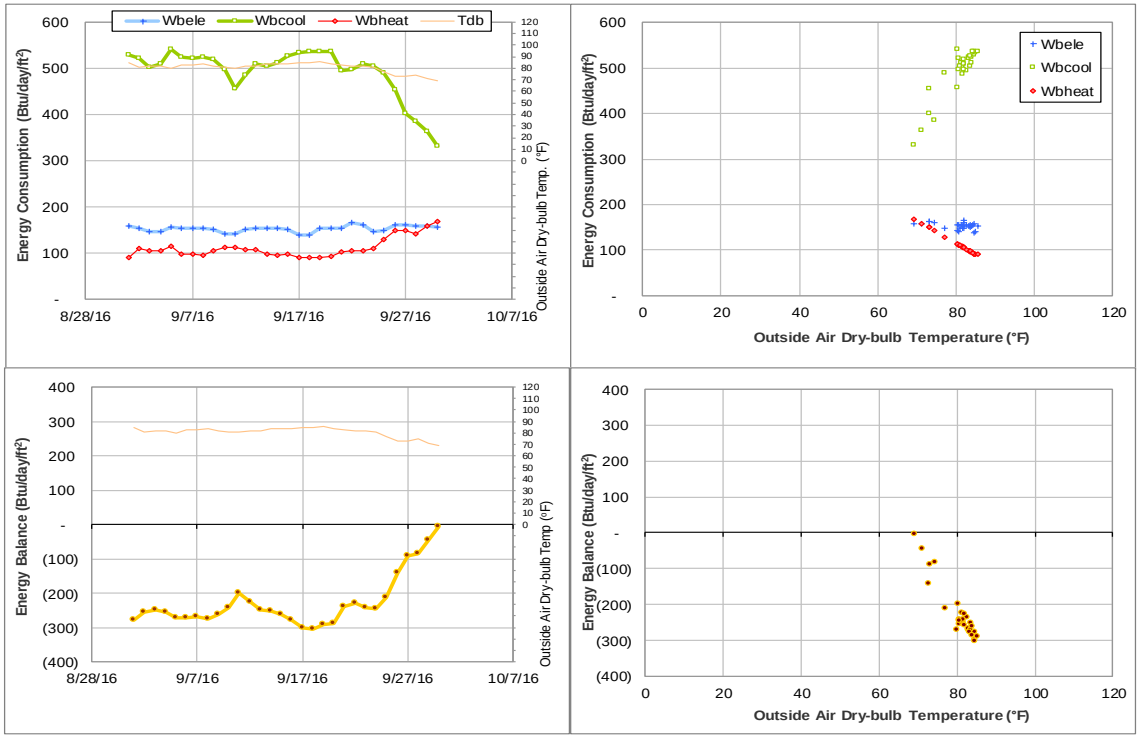


Figure V-17 Veterinary Medicine Administration TAMU BLDG # 1026 Energy Balance Plot during September 2016

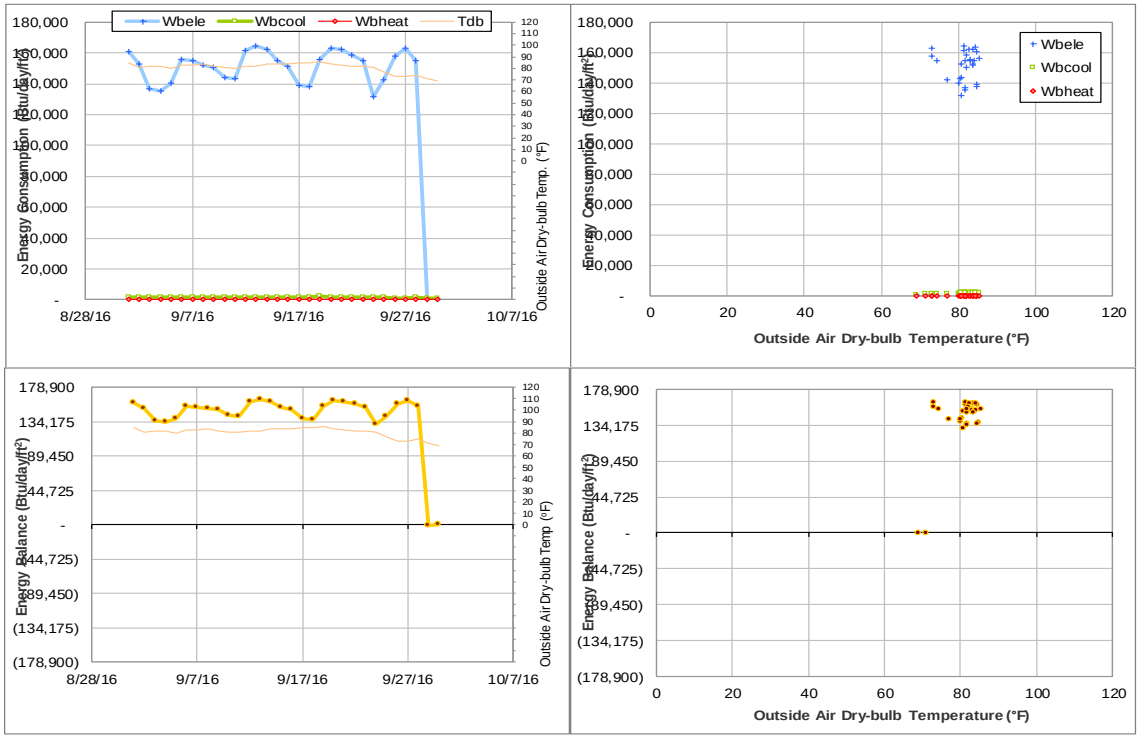


Figure V-18 Texas Vet Med Diagnostic Lab TAMU BLDG # 1041 Energy Balance Plot during September 2016

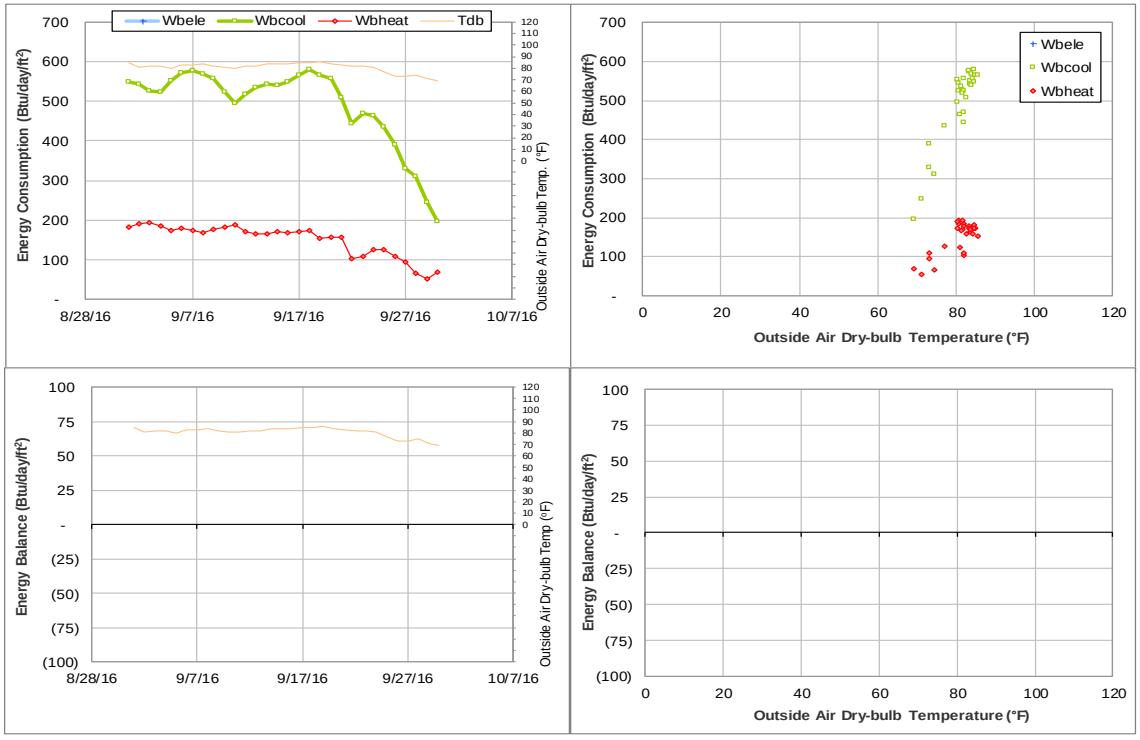


Figure V-19 Plank LLC TAMU BLDG # 1404 Energy Balance Plot during September 2016

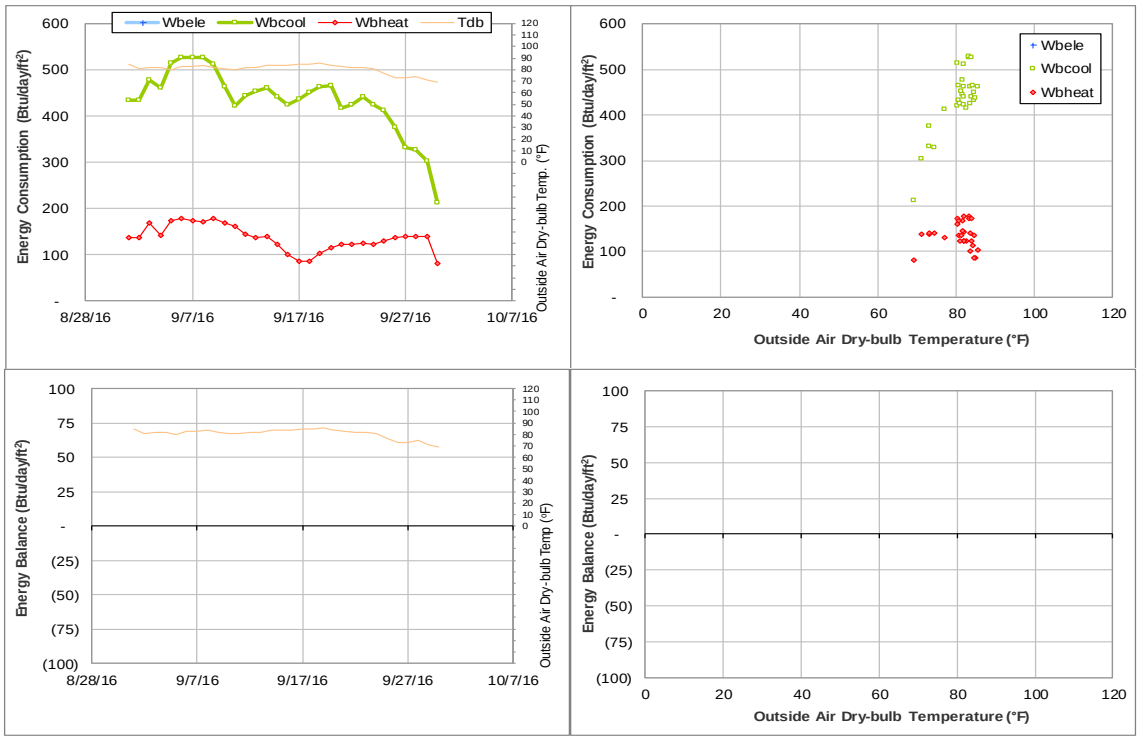


Figure V-20 Ash II LLC TAMU BLDG # 1405 Energy Balance Plot during September 2016

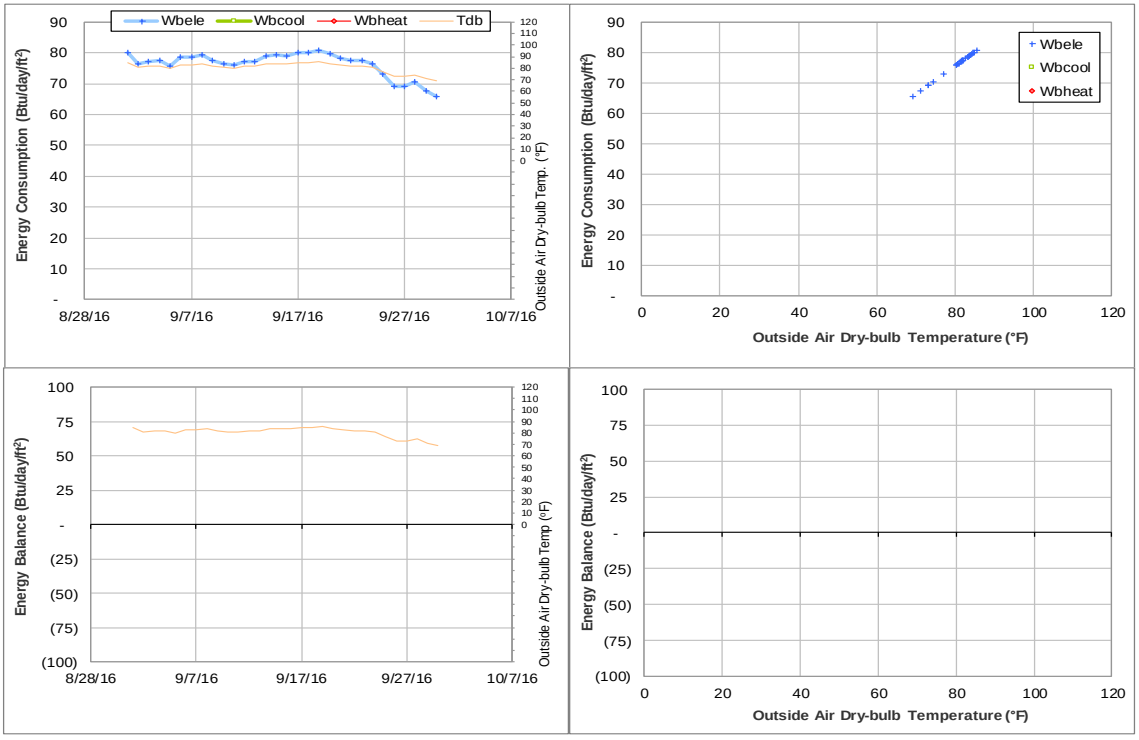


Figure V-21 University Apartments - The Gardens F TAMU BLDG # 1454 Energy Balance Plot during September 2016

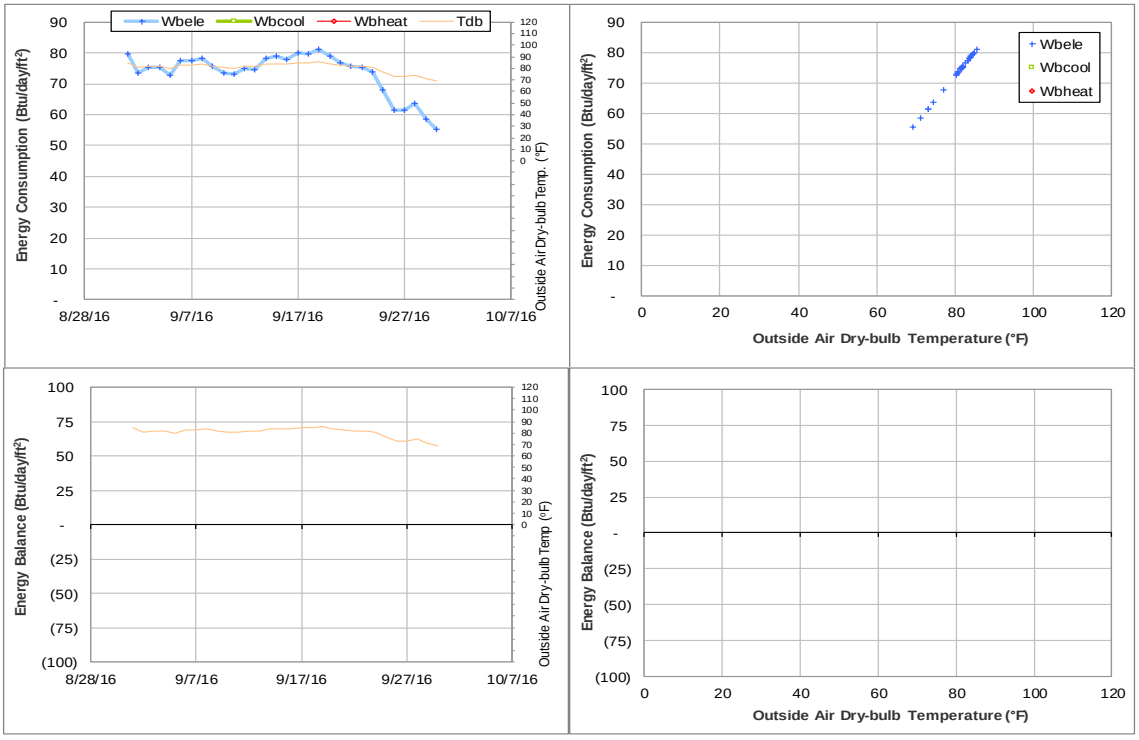


Figure V-22 University Apartments - The Gardens G TAMU BLDG # 1455 Energy Balance Plot during September 2016

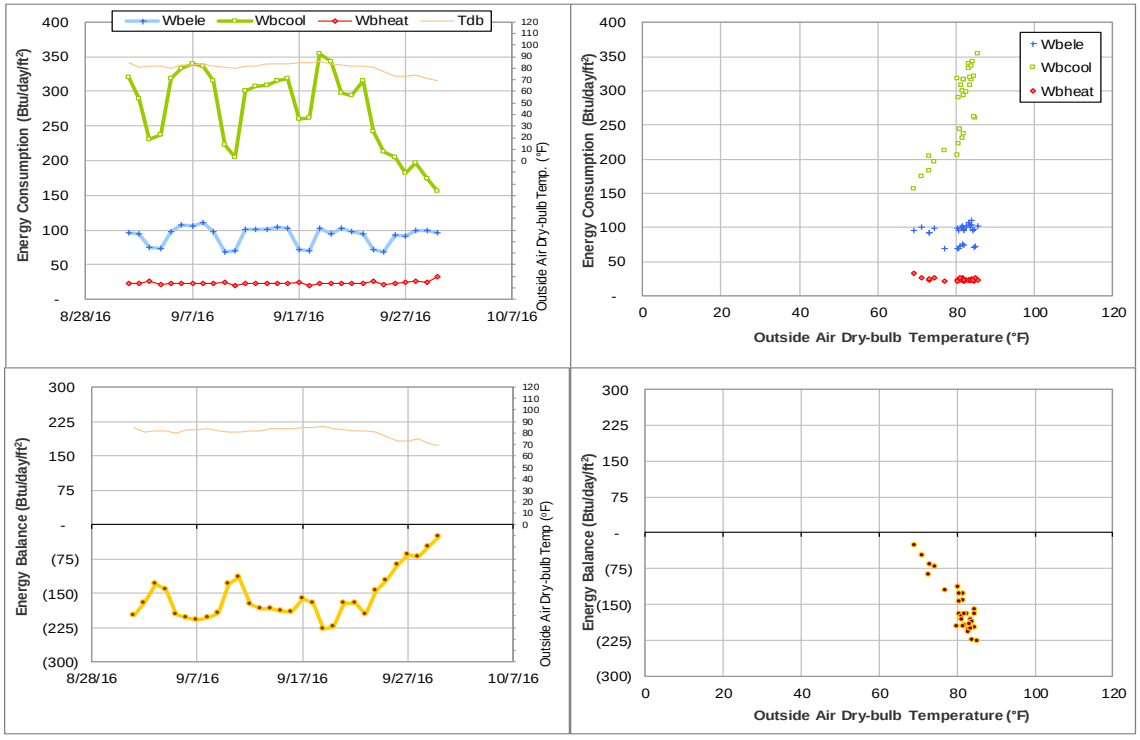


Figure V-23 Gilchrist TTI Building TAMU BLDG # 1600 Energy Balance Plot during September 2016

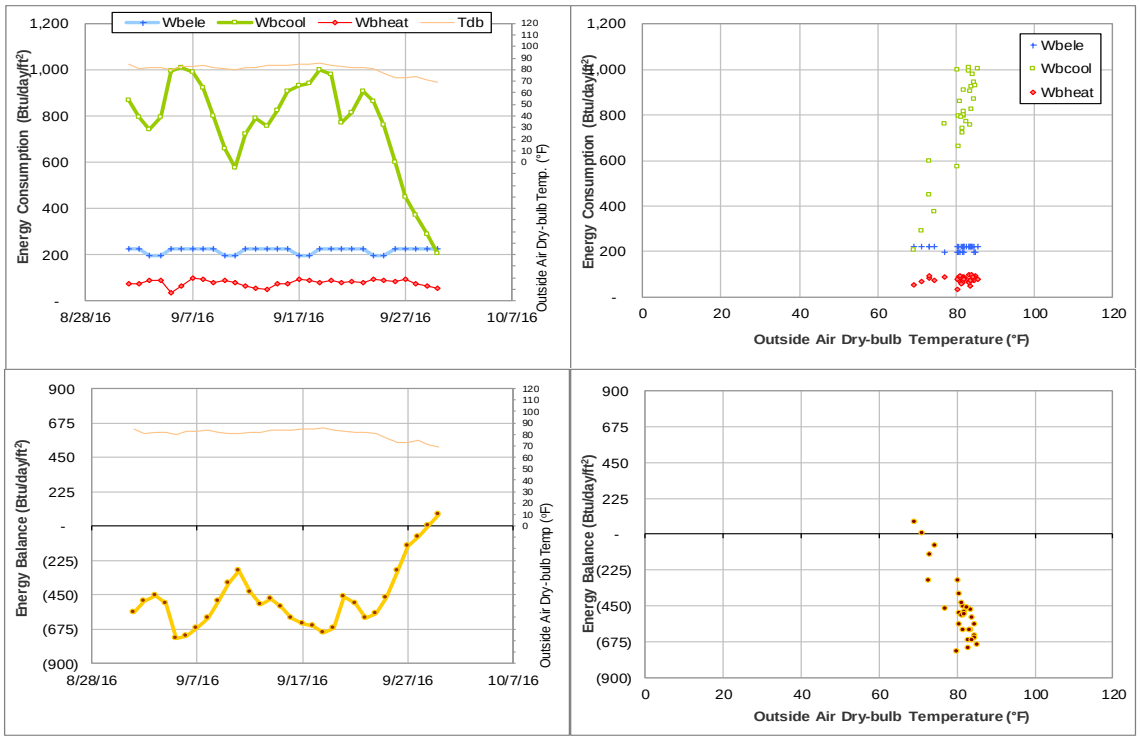


Figure V-24 Office of the State Chemist Building TAMU BLDG # 1810 Energy Balance Plot during September 2016

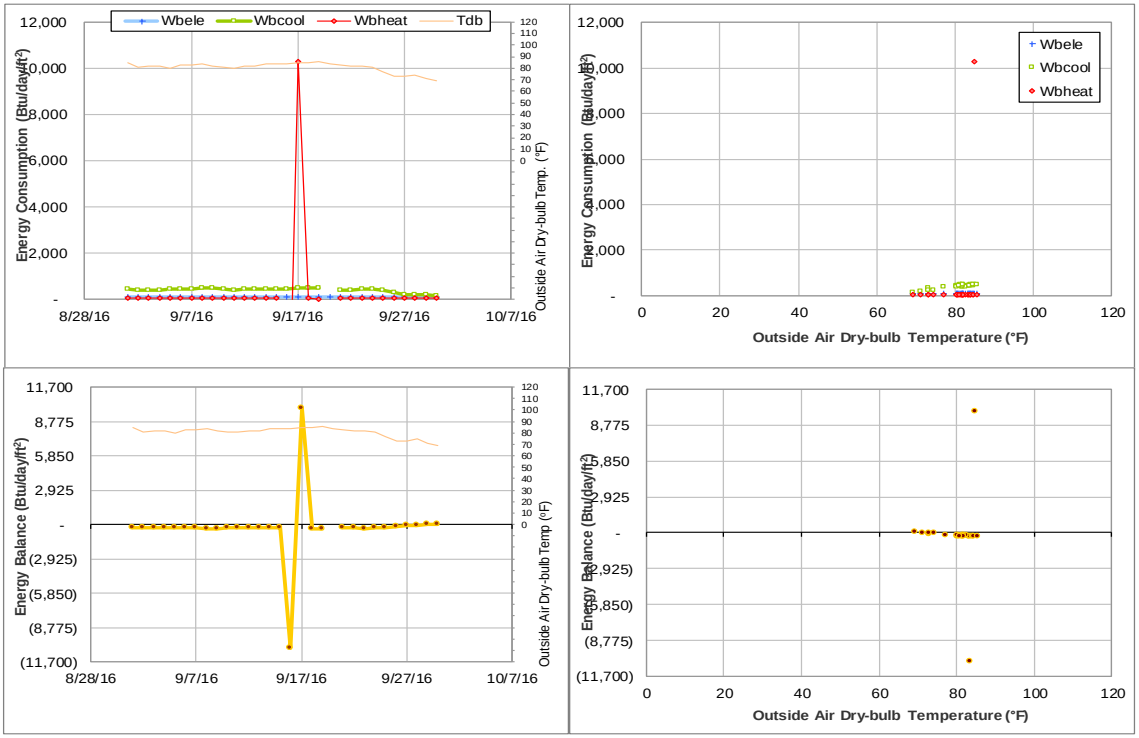


Figure V-25 Veterinary Medicine Building 1, 2, and 3 TAMU BLDG # 1812 Energy Balance Plot during September 2016

VI. Appendix

ENERGY ANALYSIS GROUP

ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

Project: TAMU: Energy Analysis*

Report: Energy Consumption Data Quality Assurance/Quality Control Assessment Report for the Month of September 2016

Prepared for:

Utility & Energy Services

Division of Administration

Texas A&M University

Authors: Xiaoli Li, Kimberly Jones, Hongxiang Fu

Dr. Juan-Carlos Baltazar, and Dr. David Claridge

Date: October 2016

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